VOL. XXXIV. No. 4 APRIL 1949

MECCANO MAGAZINE

THE ARC WELDER

6D.

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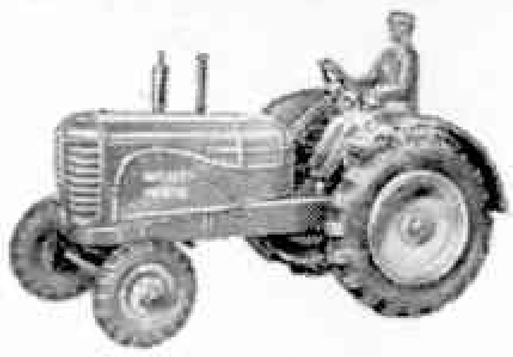

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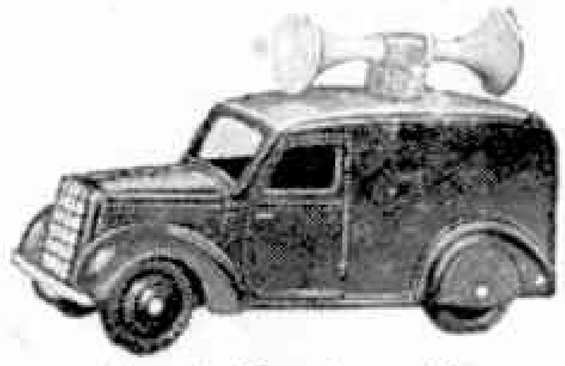

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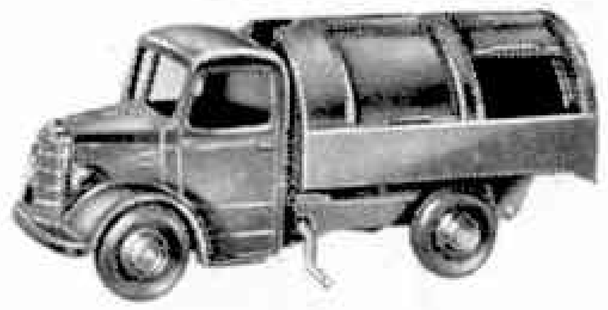

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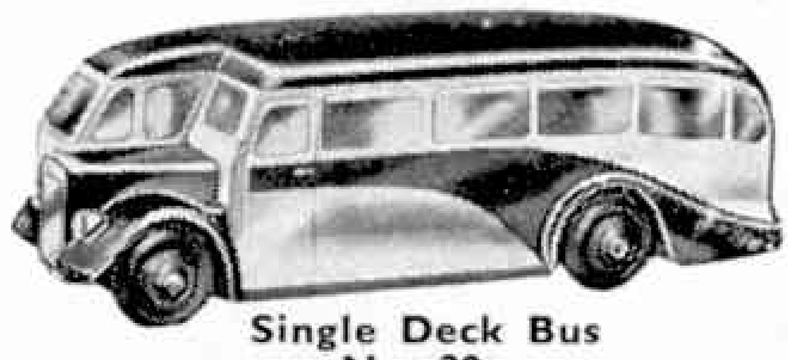

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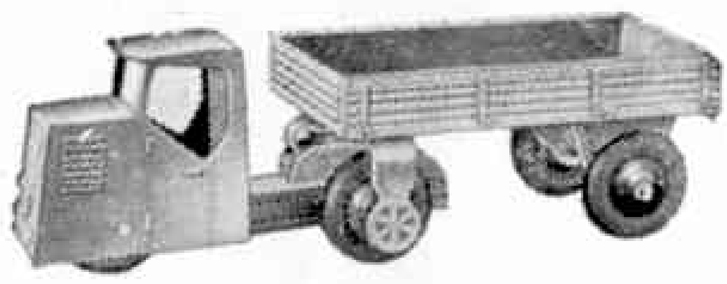

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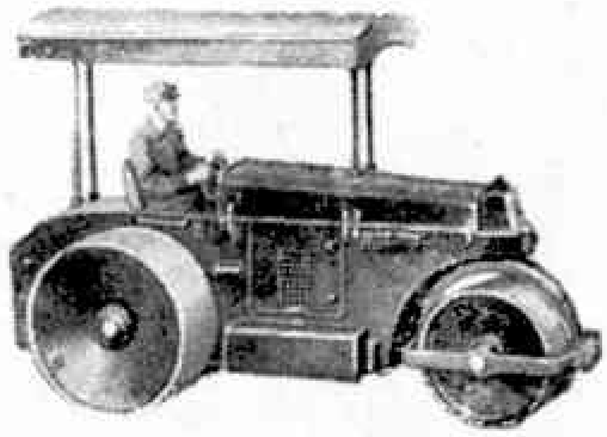

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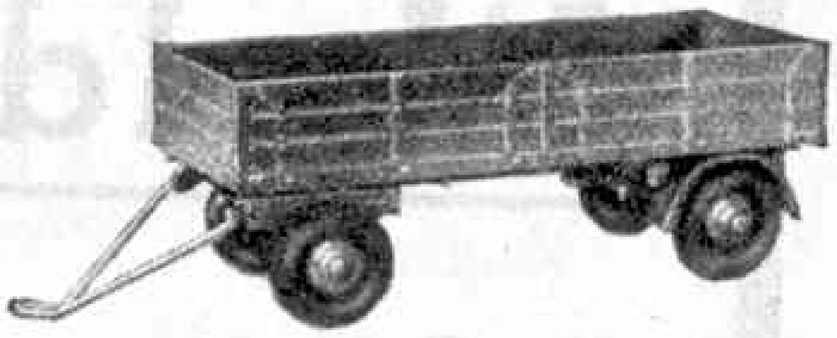

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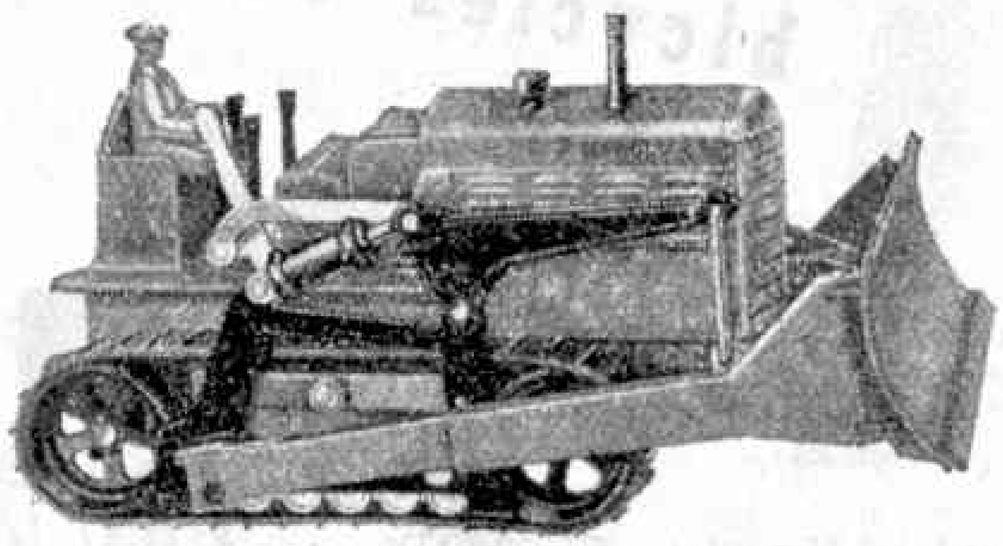

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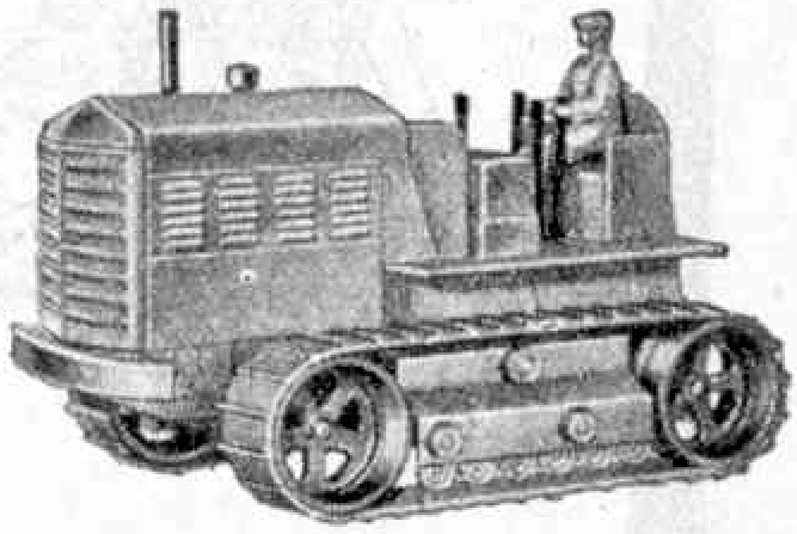

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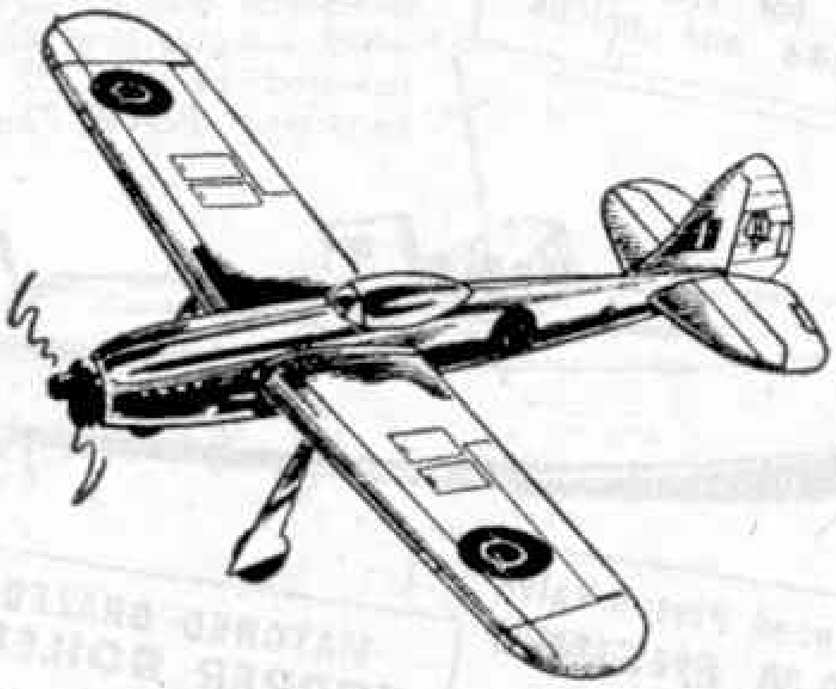

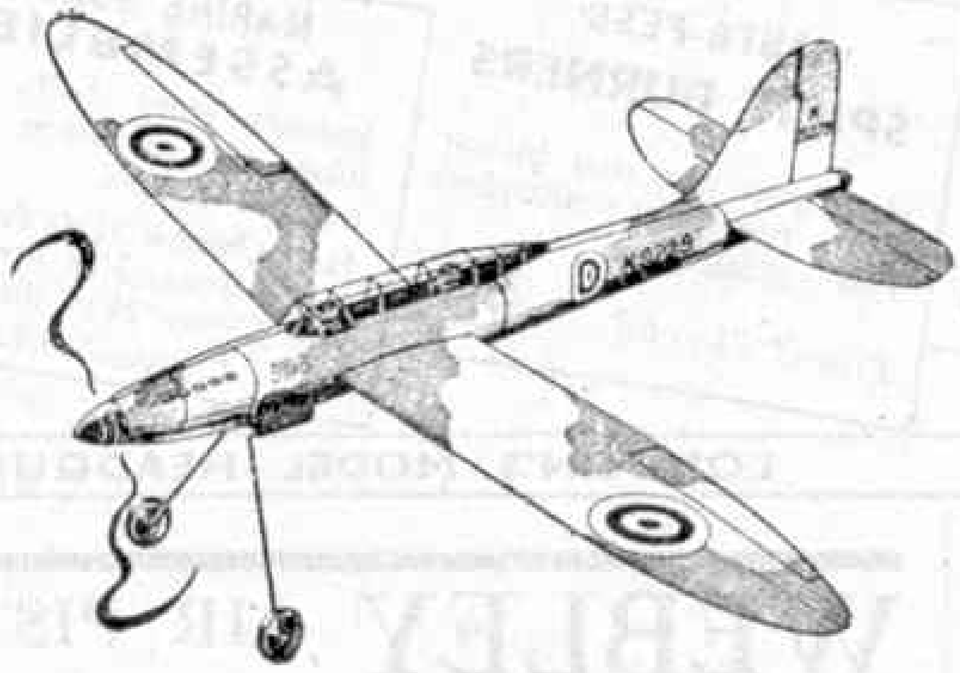

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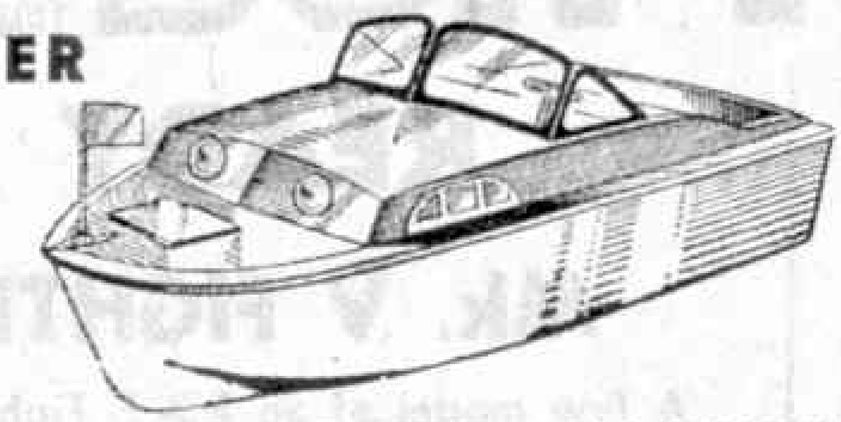

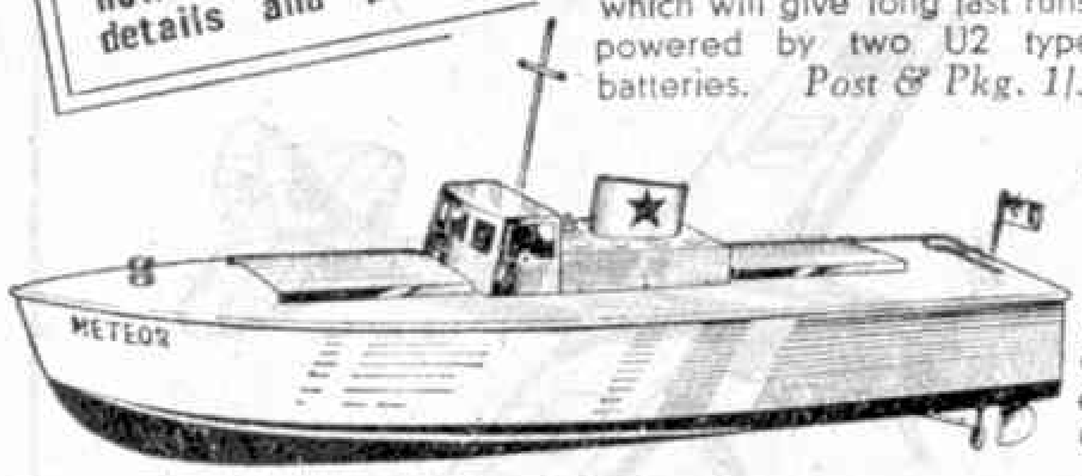

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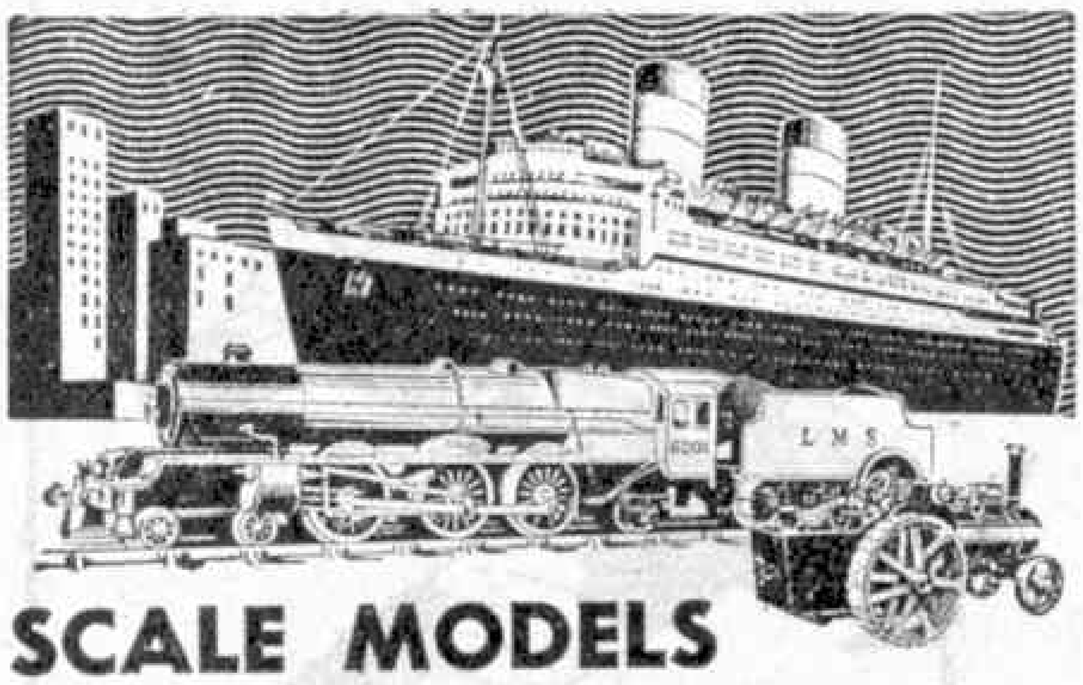

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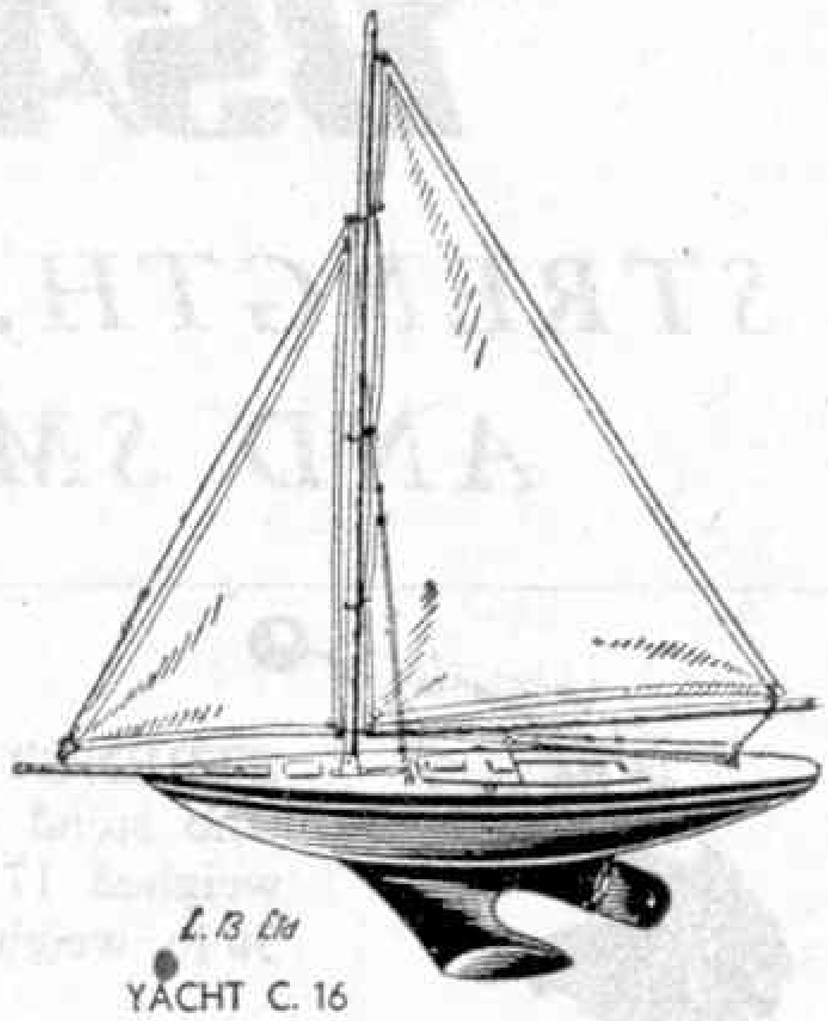
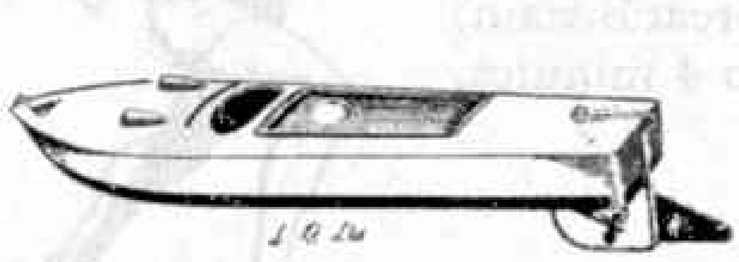
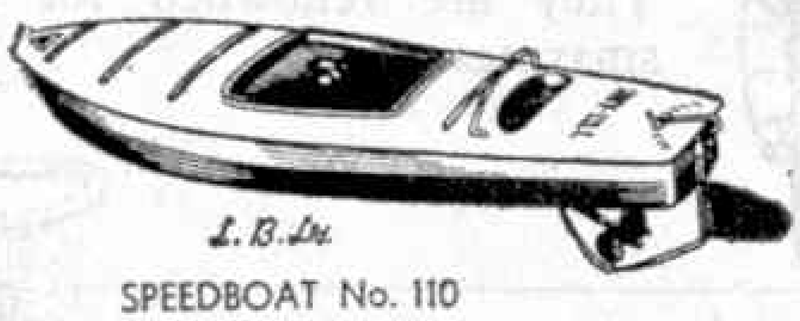


YACHT C. 16

Watch out in your local toy shops for the splendid TRI-ANG Yachts. They come in a variety of sizes, all well rigged and unsinkable. They feature streamlined water-tight metal hulls beautifully finished in a variety of high-gloss enamelled colours.



SPEEDBOAT No. 100



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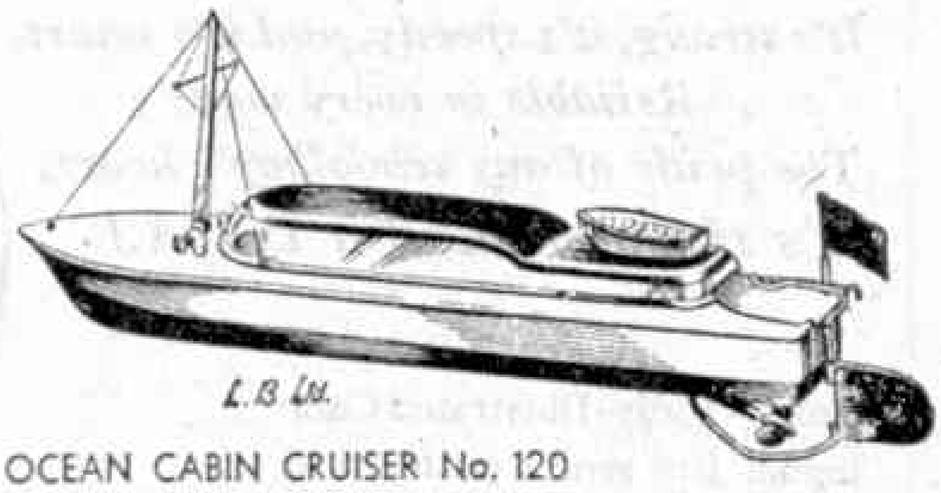
Powerful clockwork motors drive these TRI-ANG all-metal speedboats specially designed for speed and good looks. All are fitted with water-tight decks, adjustable rudders and 3-blade propellers with guards. Three models are now available—No. 100 (9 in. hull), No. 110 (12 in.) and No. 120 (17 in.)—all keenly priced.



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Next Month: "CROSS-CHANNEL PACKET BOATS." By A. Gaunt, F.R.G.S.

MECCANO MAGAZINE

Editorial Office:
Binns Road
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Vol. XXXIV
No. 4
April 1949

With the Editor

The Berlin Air Lift

When an R.A.F. "York" transport "overshot" Gatow airfield in bad visibility on 19th February, it broke one of the most important rules of the Berlin Air Lift by landing on a second attempt. But this was no ordinary flight, for the "York" carried as part of its cargo the one millionth ton of food and supplies flown into the German capital since the operation started in June 1948.

As this seemed a good time to sum up the achievements and lessons of the Air Lift, I invited Mr. John Taylor to write the article which appears on pages 134–6.

Since his article was written it has been revealed that the cost of flying into Berlin those one million tons was about £4,000,000 for the British "Operation Plainfare" and £26,000,000 for the American "Operation Vittles." It had involved 130,072 aircraft sorties, totalling more than 70,000,000 miles, and the labour of 57,000 British, American, and German personnel. It had cost the lives of 10 British and 26 U.S. airmen.

This is a high price to pay for the right to stay in a city that was a target for our bombers a mere four years ago; but it is less than the cost of two days of modern war. If it can help to prevent the present "cold" war from developing into the shooting kind, the aeroplane will indeed have proved itself as great a blessing to mankind as its creators 46 years ago hoped it would.

Visitors to L.M.R. Engine Sheds

The London Midland Region report that 43,432 enthusiasts visited the 125 engine sheds on the region last year. Among them were schoolboys, grandfathers, engineering students and railway fans of all ages. Londoners topped the poll—more than 16,500 of them went to Willesden, Cricklewood and Camden and other depots.

This total is a record, and shows that the railway engine maintains its hold on the public imagination. To go behind the scenes to see the servicing of giant locomotives is still a major thrill to the mechanically minded.

* * * *

Our cover picture gives a strikingly realistic impression of an electric arc welder fabricating the stator of a huge turbo-generator for the Battersea Power Station. For the photograph on which this cover is based I am indebted to the Metropolitan-Vickers Electrical Co. Ltd. For next month I have in preparation a very interesting article on welding.

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Ships' Flags, Past and Present

By Frank C. Bowen

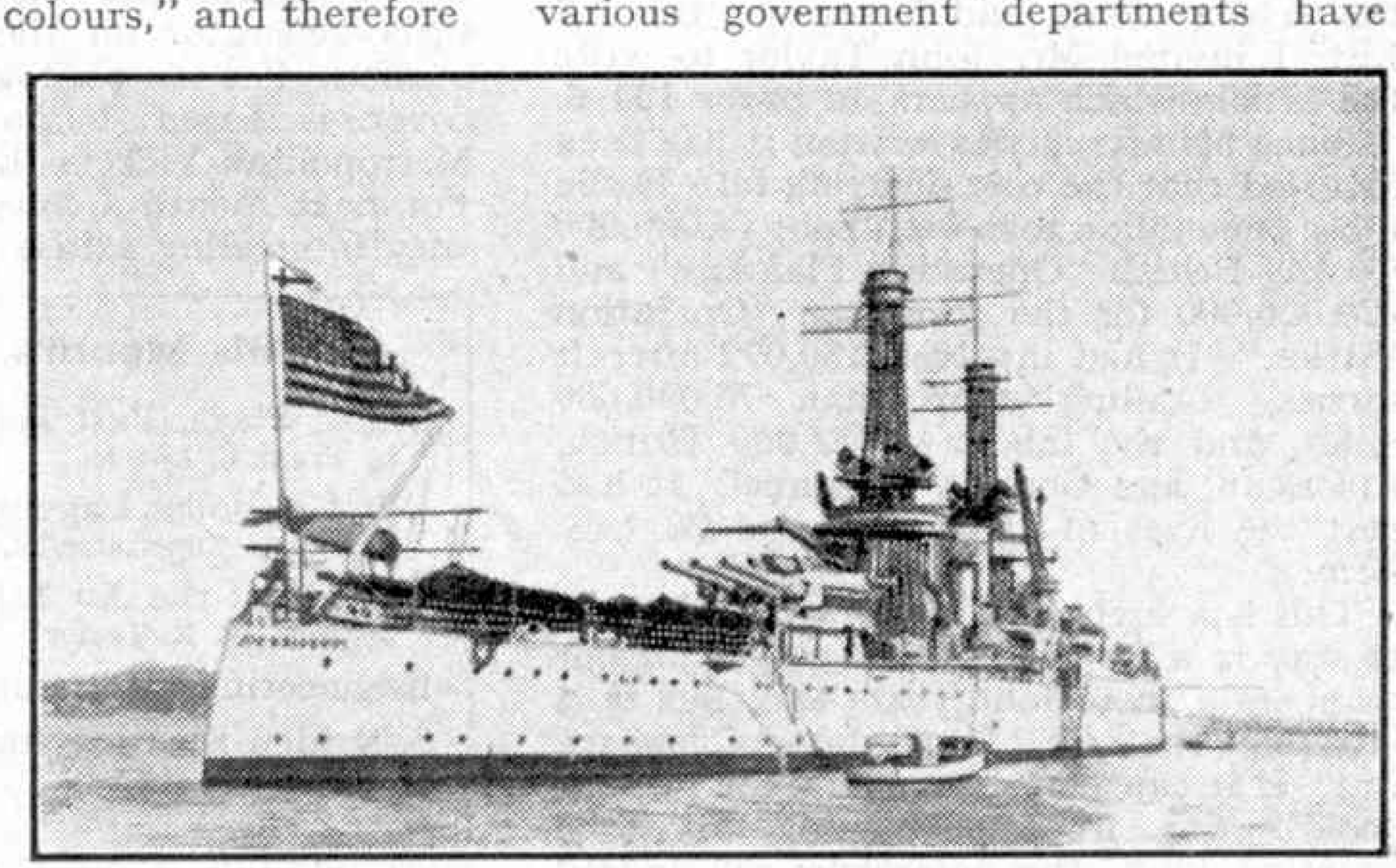
FROM time immemorial the flags which are worn or flown by a ship have been a matter of great interest. On the picturesque side their importance is obvious and has been appreciated from mediæval days, when flags made an important part of the ship's inventory, to the present time when ladies ashore consider that they look very pretty. Their serious use must go back nearly as early, first to distinguish ship from ship by the heraldic devices of the knights in charge and friend from foe by national insignia, and second to let the admiral control his fleet by having a means of passing his orders.

Customs so deep rooted in antiquity have naturally collected round them a strict etiquette and nothing condemns a merchant ship so completely in the eyes of professional sailors, or a yacht in the eyes of yachtsmen, as disregard of flag etiquette. This applies to all flags, but particularly to the official ones like the National Ensign which are, properly speaking, a "suit of colours," and therefore are "worn" by a ship and not "flown." The misuse of the National Ensign is naturally by far the most serious offence, and it entails not only the contempt of professionals but a very smart penalty. In war-time a fighting ship may hoist false colours as a ruse, but may not fight under them or she becomes a pirate; in peace-time the ensign may be worn only by the ships to which it properly applies.

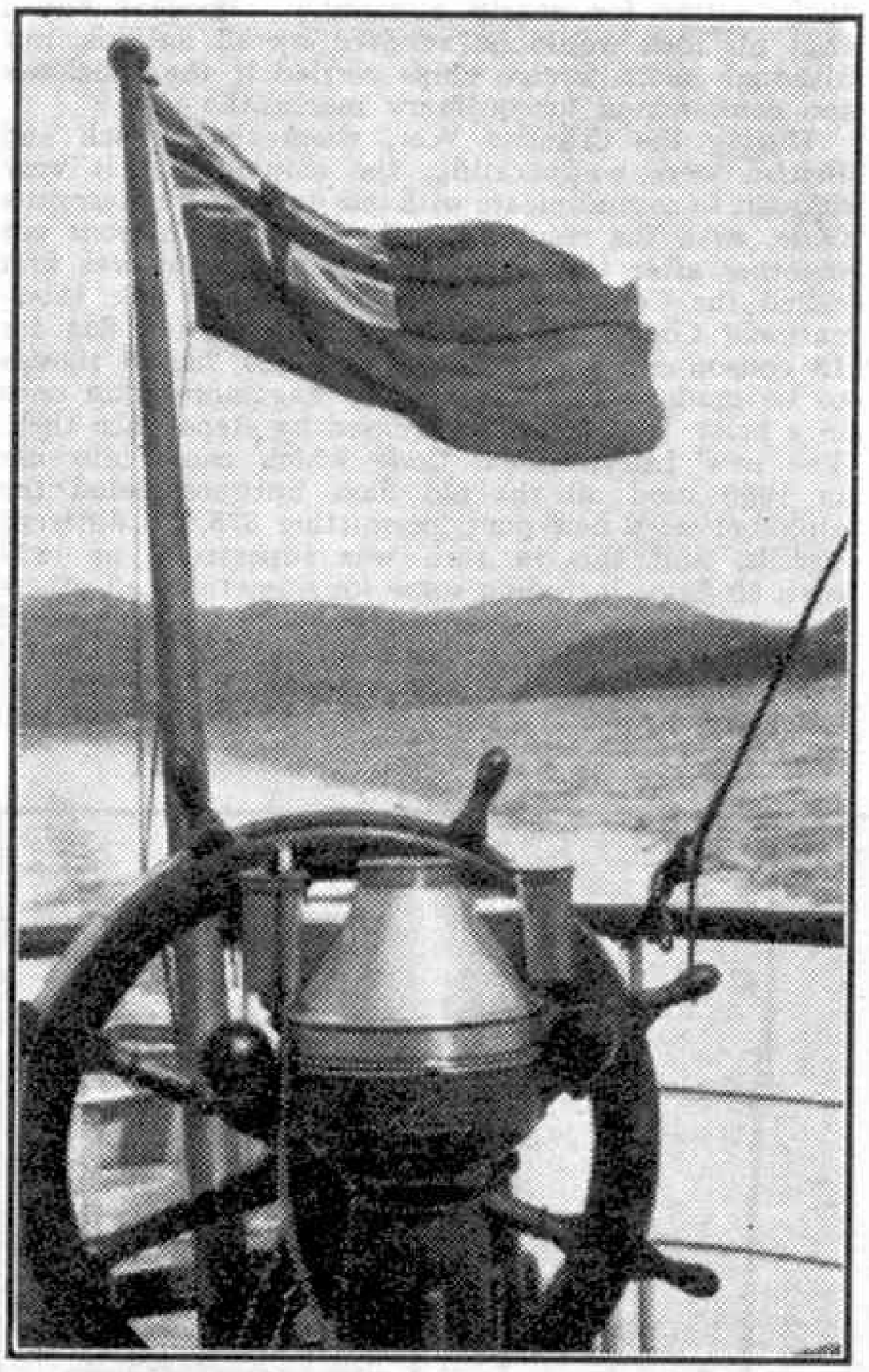
Many countries, for instance France, the United States, Russia and others, have the same ensign for all purposes, while others have a different one for different types of ship. Britain is the only country to have three—the Red, White and Blue Ensigns inherited from the old naval squadrons and dating from the seventeenth century. Each appertains to certain services. Broadly speaking, the division is the White Ensign for the Navy, the Blue Ensign for the Royal Naval Reserve and government services like the War Department or Customs, and the Red Ensign for all others. There are, however, certain exceptions to the general rule. Members of the Royal Yacht Squadron are allowed to wear the White Ensign like a man-of-war, but they must not combine it with the long whip pendant at the masthead. Members of many of the established yacht clubs may wear the Blue Ensign, but the distinction is a purely personal one and subject to a personal warrant which applies to the one member only.

The White Ensign is never "defaced," but the others are on many occasions. In the old days there were some variations, for instance the East India Company's ensign was a gridiron of red and white stripes which supplied the origin of the United States Ensign of to-day. The various government departments have their crest in the fly—the outer end—of the ensign, such as a crown for the Customs, and many yacht clubs have their ensigns, whether Blue or Red, "defaced" by their crests.

The Union flag, popularly the Union Jack, is strictly reserved to the Navy. All H.M. ships wear it as a jack on a small staff in the bows, while at the



The church pendant flying over the ensign of a U.S. battleship—the only flag which ever does—to keep visitors away while Divine Service is in progress. Photographs to this article by Nautical Photo Agency.



The national flag for all British vessels without special privileges; the "Old Red Duster."

masthead it signifies an Admiral of the Fleet, the highest rank in the Navy. Anybody else who flies it afloat is liable to a very heavy fine, and as it is the national flag a good deal of feeling is aroused by that. A jack forward greatly adds to the smart appearance of a ship and there is no law as to what flag shall be used as long as it is not the Union flag. Many ships use the pilot jack, a Union flag with a white border which is normally one of the signals to call a pilot, so that the result might be embarrassing unless it is balanced by a red and white flag elsewhere to show that there is a pilot on board.

With regard to national flags and the protection that they give to a ship, it may be mentioned that several countries have laws which prevent foreigners owning shares in ships, but nothing to prevent their owning shares in the companies which own the ships, so that the protection of the flag may be grossly misapplied. That often occurred during the American prohibition period and led to a lot of bad feeling.

At the present time Panamanian registry, and the right to wear their pretty red, white and blue flag, is granted to a large number of ships for various purposes. Very frequently, naturally, it is to evade expensive regulations made for safety, the welfare of seamen, etc., but sometimes it is for a more legitimate purpose.

As a matter of courtesy a merchant ship wears the national ensign of the country which she is visiting at the foremast head, and as a signal when she is about to leave port, the ensign of the next country that she will visit. Every British ship must wear the ensign when in a foreign port or entering or leaving it, sometimes at a gaff from the aftermost mast and sometimes from an ensign staff right aft. At the masthead of a ship entering a British port it is the signal for the Customs to come on board and search.

Men-of-war naturally have a more intricate system of flags. Apart from making them easily distinguished from merchantmen, by the long whip pendant at the masthead of ships which do not carry admirals, each senior officer in authority flies his flag, a square flag for admirals of various grades and a "swallow-tail" for senior captains acting as commodores in command of a group of ships. For further distinction each man-of-war has its own identifying flags. One set is for naval use, while another is in the International Code in which every merchant ship has her "numbers." The pendant numbers and letters of naval small craft, which are built in such numerous classes of exactly similar appearance that identification is difficult, are painted on the side of the hull forward.

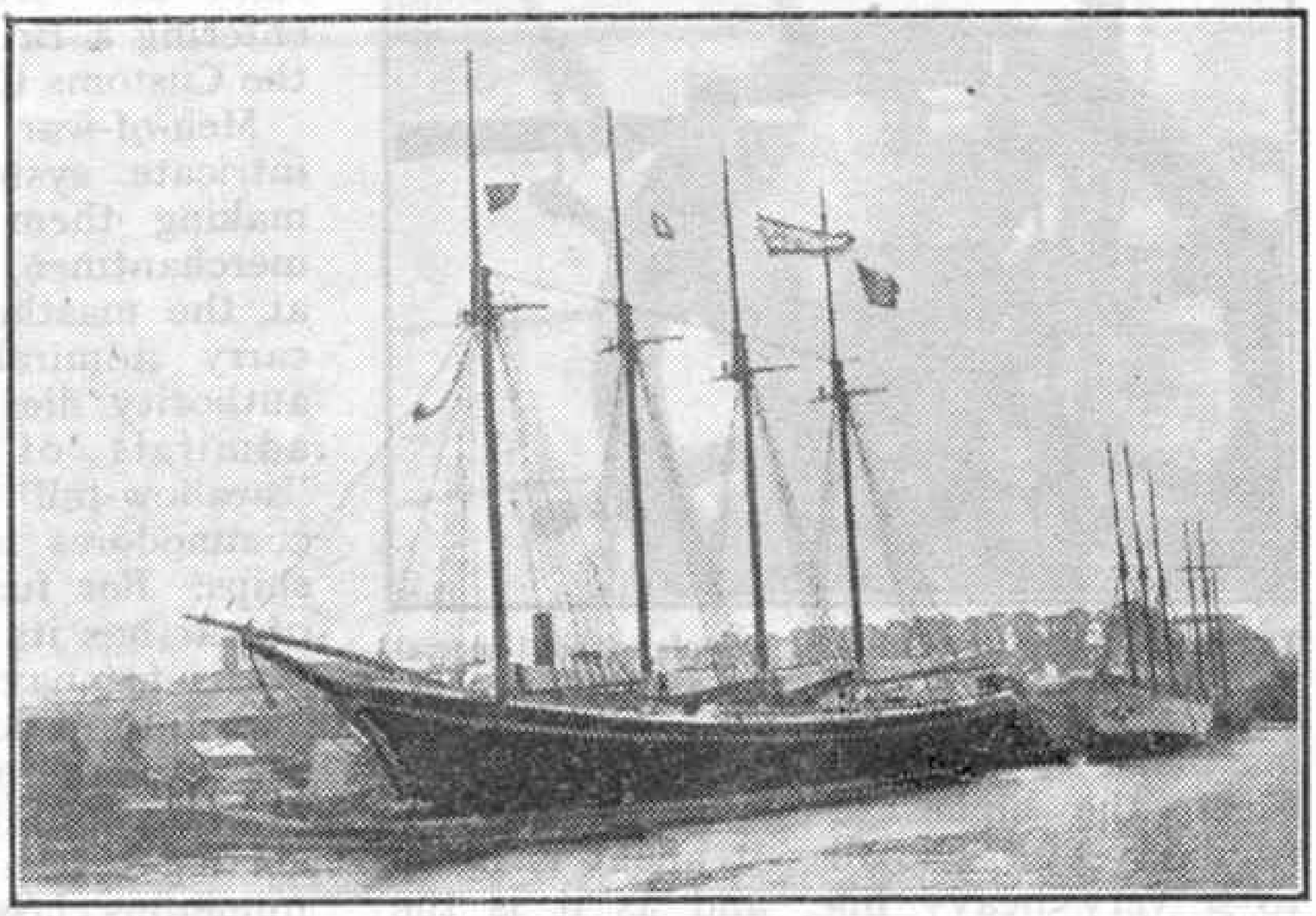
A merchant ship flies her "numbers," four flags whose letters bear no relation to her name—the "*Queen Mary's*" numbers are GBTT—only when she is communicating with another ship or passing a signal station which will report the ship to her owners. But she flies the company's house flag at her masthead practically all the time, at sea or in port, and these flags make a most interesting study. The P. and O. house flag, for instance, is quartered diagonally, and combines the blue and white of Portugal with the red and yellow of Spain, the two countries to which the company ran in its earliest days. The Anchor Line carries an anchor with four links of chain cable, signifying the four Henderson brothers who started it.

When choosing a device for the flag, owners always have to remember that the

sailor is an irreverent soul with a very quick mind for parody. The Cunard flag bears a lion rampant holding the globe in its claws, which the sailor calls "the monkey and the nut." The American Line most appropriately carries the American eagle with its traditional open beak, but that has earned it the nickname of the "Hungry duck line," although that is not heard as often as it used to be. Initials are dangerous. The "P. and G." of Messrs. Pollock and Gilmour was parodied as "Poverty and Grief," while the "S. and S." of Smith and Sons became "Slavery and Starvation" in sailing ship days, although both companies looked after their crews unusually well for the period.

The custom of distinguishing individual ships with a long pendant bearing the ship s name in big letters was formerly in very general use. Nowadays it is practically confined to excursion steamers and is rather held in contempt by the deep sea sailorman, although it has a very practical purpose in identifying the ship to those who are not able to recognize her by structural features as a sailor would.

In addition to her ensign, a yacht belonging to a recognized club flies its burgee at the masthead—generally a triangular pendant for private members and a swallow-tail for the flag officers —with the club's crest on it. In the old days all yacht owners also had their private flags, often very ingenious, which were flown by their yachts whenever they were on board, but the number has declined. Sometimes the same flag is also used for racing, but in most cases a special racing flag is devised for each yacht, designed to be as simple as possible in order to be recognizable at a long distance. It is only flown when racing, usually in place of the club burgee, and in miniature in port during the racing season when yachts carry them in a string from the masthead, one for each prize which has been won during the season. They are divided by coloured square flags into first, second and third prizes, and a successful yacht will have a wonderful display by the end of the year. As Prince of Wales, King Edward VII used the Prince of Wales' feathers as the "*Britannia's*" racing flag, while Sir Thomas Lipton had the Irish shamrock for all the "*Shamrocks.*"



The American 4-masted schooner "Joseph B. Thomas," in mourning, flies all her flags at half-mast including one with her name in big letters.

Flags for identification are very much older than flags for communication, which were first introduced into the Navy in the eighteenth century in a very primitive form. They were used principally to permit the admiral to give orders to his followers, and as naval manœuvres became more complicated so the number of flags was constantly increased to allow more signals to be made. One such increase was made shortly before the Battle of Trafalgar, but it was overlooked for years, and H.M.S. "*Victory*" on successive Trafalgar days flew Nelson's immortal signal in flags which had been superseded in 1805. That has now been put right, and the numerous hoists which she exhibits on 21st October show how cumbersome the code was in those days.

It was Captain Marryat, the author of "*Mr. Midshipman Easy*" and other classics, who first thought it worth while to provide a code by which merchant ships could communicate with one another. It was a numerical code, and as it was principally used by sailing ships meeting one another at sea, with the understood object of their position being reported to their owners at the first opportunity, the flag signals for ships' names are still referred to as their "numbers," although they have really been their letters for nearly a century. Marryat hoped that his idea would be adopted by all nations, but although some foreign ships carried it the code was too complicated for ordinary mercantile use.

During the Crimean War, when the French and British were co-operating, the ships found it very difficult to communicate with one another by Marryat's Code, with the result that the maritime nations got together after the war and produced what was first called the Commercial Code, but is now the International Code. The first had a distinctive flag for 18 consonants only, which permitted 78,660 signals to be made without using any flag more than once in a hoist. It has been increased by steps since then. The new International Code which came into use in 1900 used all the old flags but completed the alphabet with new ones, permitting 375,076 different signals; and this in turn was superseded in 1934 with 40 flags, including some for numerals and others to permit flags to be repeated. That was devised in consequence of experience during the First World War, and the Code Book was designed to be used in wireless telegraphy and Morse signalling as well as flags.

Although each flag represents a letter, they do not spell out words. The Code Book which goes with the flags is worked out in seven languages. Four flag signals beginning with certain letters are immediately recognized as the ship's name and are looked up in a separate list. A few special signals are made with one or two flags only; they are always the most urgent ones, so that they are easily memorized and need not be looked up in the book. There are single-flag signals to show that a ship is on trial and to request other ships to get out of her way; that she is loading or carrying high explosive cargoes, or that she has plague on board. Two-flag signals are generally calls for help, and there is an old story of the excitement on board a P. and O. liner carrying a number of officers among her passengers when she passed a lighthouse in the Red Sea which was flying a two-flag signal indicating "being attacked by savages." The rescue party were very annoyed to find that it was only the initials of the lighthouse keeper's small son, flown to celebrate his birthday.

The disadvantage of signalling by flags is that, if the wind is blowing directly between the two ships, they will be very difficult to read by any but experts like the signal ratings in the Royal Navy. On the other hand it has the great advantage of being exhibited for an

(Continued on page 164)

Have You Ever Thought About This?

What is Boiler Lagging?

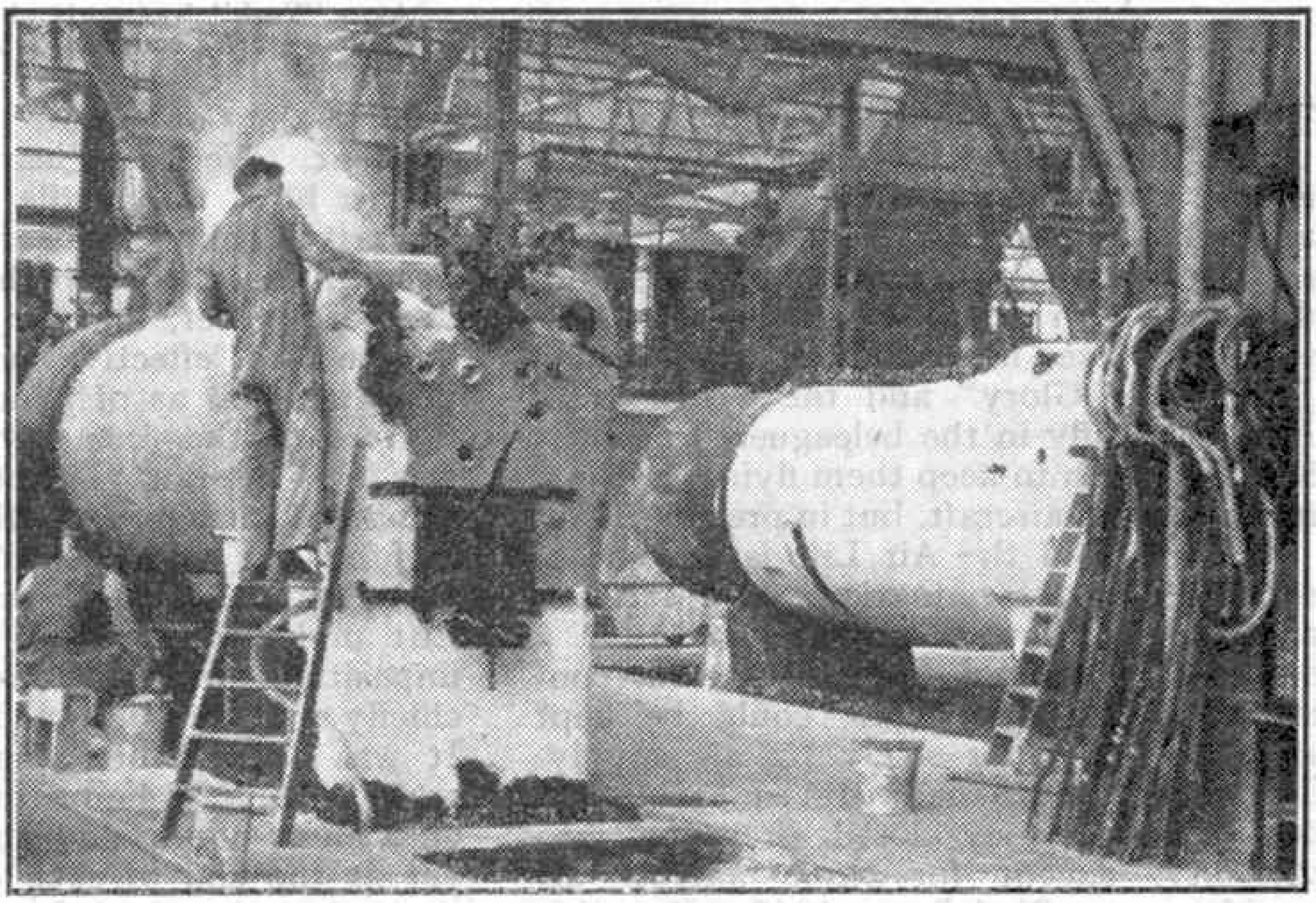
By "Shed Superintendent"

THE term "Lagging Gang," applied to men in a Locomotive Repair Shop, might be taken by the uninitiated to refer to a gang that has fallen in arrears with its work! The men in this gang are, as a matter of fact, usually on top of their job! They are responsible for wrapping the boilers with various materials to protect them from the weather, to provide heat insulation, and to secure a good finish to the external surface of the engine. This clothing process is known as lagging.

On early locomotives, strips of wood were commonly used as lagging. These strips were bound in position with brass bands and polished, as seen in old pictures. The wood, of course, soon deteriorated in the process of being wetted by rain and dried by the heat of the boiler, so an outer covering of sheet iron was added to protect the wood and to take the layers of gorgeous-coloured paints which distinguished the engines of the old railway companies. There are a few engines still in service with wood lagging.

At the beginning of this century asbestos came into commercial production, and it has been used on locomotive boilers either in the form of slabs about 2 in. thick, or in the form of a plastic composition. The photograph shows composition being applied to boilers at Swindon Works, and it will be noticed that the boilers are warmed, to dry the material. Slabs were preferred by some railways, as they can readily be removed and replaced when the boiler undergoes examination and repair; but they were liable to breakage, and woven asbestos mattresses, specially "tailored" to fit the boiler, are now found to be more satisfactory. These mattresses are readily removable when required.

Asbestos is an imported material, however, and attempts have been made to find a substitute. As air is a poor conductor of heat, fairly good heat insulation can be secured by enclosing the boiler in air! The War Department engines, built in 1943, dispensed with lagging as an economy measure, and an air space was left between the boiler and its casing. The Southern Region "Pacific" boilers are lagged with mattresses of spun glass, which holds myriads of tiny air cells. Mattresses of crumpled aluminium foil have also been tried on the same principle.



Lagging composition being applied to a boiler at Swindon Works.

The outer casing nowadays is made of thin sheet steel, and care must be taken to enclose the lagging material completely, otherwise it may become soaked with oil splashes. A spark is then liable to cause a serious fire, fanned by the air currents around the moving engine.

External pipes are left uncovered but train heating pipes are wrapped with felt.

Lessons of the Air Lift

by John W. R. Taylor

Avro "York" transports at Gatow Airport, Berlin. Photograph by courtesy of A. V. Roe and Co. Ltd.

THE Berlin Air Lift has entered its 10th month. For 280 days never-ending streams of British and American aircraft have poured food, clothes, medicine and fuel into a city that their pilots once deluged with bombs. Because those streams have never ended, the Union Jack, "Old Glory" and the Tricolour of France still fly in the beleaguered city. It has cost much to keep them flying, not just in money and aircraft, but in precious lives.

The story of the Air Lift is an epic of courage and determination. Few but our air chiefs believed a year ago that a district the size of Western Berlin, containing 2,500,000 people, could be kept alive and at work solely by air supply. Certainly the Russians did not think it possible when they closed all routes into the city, except for three narrow air corridors, on 21st June 1948. Yet this prodigious Air Lift has been so successful that it is accepted as part of our everyday life that can go on for ever if need be. Unfortunately that is not true, and one day Allied commanders, and the Russians, will have to face the fact.

Meanwhile, what have we gained from the Air Lift?

The political and strategic benefits are obvious; not so apparent are the lessons being learned the hard way by R.A.F. Transport Command and the United States Military Air Transport Service, yet they are just as important. Precious minutes lost in loading bulky sacks and boxes through small doors intended only for passengers have taught lessons that will make our new transports more efficient. We have learned a great deal about how to handle vast streams of aircraft quickly and safely, and we have been given another, perhaps final, warning that air power, and air power alone, can be the most effective means of preserving peace as well as of winning wars.

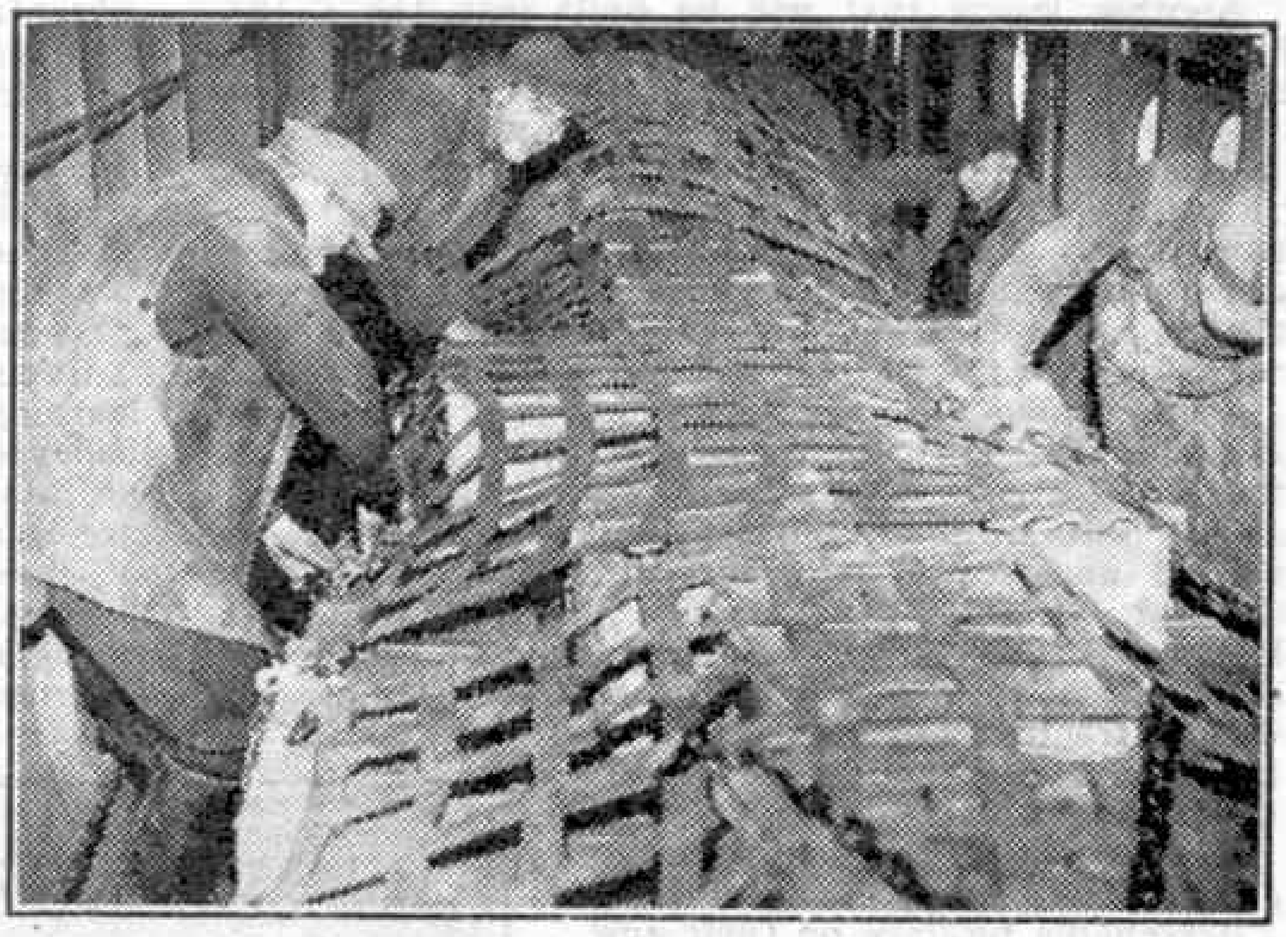
Hero of the first days of the Air Lift was the veteran "Dakota." By plucking grounded airmen from their desks and by digging out every available "Dak," the R.A.F. and U.S.A.F. were able to get the Lift under way within five days of the imposition of the blockade, carrying chiefly milk for children, flour and medicine. It was a heart-breaking business. Some crews spent 28 hours on duty, slept for only eight hours, and then started again; yet at the end of each day they realized that what they had flown into Berlin was only a dribble of the 4,500 tons needed daily to maintain life in the city. More and bigger aircraft, and fresh crews, were needed desperately.

They soon arrived, from every corner of the world—R.A.F. "Yorks," M.A.T.S. "Skymasters," more "Daks." Later, Transport Command introduced several of their new "Hastings," with great success. Then British civilian operators took a hand, under the guidance of British European Airways, whose own "Vikings" maintained a regular passenger service into Berlin even after one was rammed by a Soviet fighter, with the loss of all on board. The charter companies contributed "Haltons," "Wayfarers," "Vikings,"

"Hythe" flying boats and still more "Dakotas." Flight Refuelling Ltd. sent along "Lancastrians" and a "Lancaster" to carry liquid fuel into the city. A surprise arrival was Air Vice-Marshal D.C.T. Bennett with a "Tudor" 2 belonging to his newly-formed Airflight Company, soon joined by more "Tudors" flown in by Airflight and B.S.A.A.

As an experiment, the Americans tried out their giant Douglas C-74 "Globemaster" on the run; it proved still more conclusively that the future of air cargo is not in high speed but in big aeroplanes, driven by powerful but economical and reliable engines. On 18th September, for example, it remained airborne for 20 hours out of 24, and carried 120 tons of supplies into the city in six round trips. The "Tudors," too, soon proved their worth, by averaging four trips a day for days on end, carrying 10 tons of freight each time. When the "Globemaster" was withdrawn they were, and still are, the biggest load-carriers on the Air Lift—a great tribute to an aeroplane that has been too often criticized.

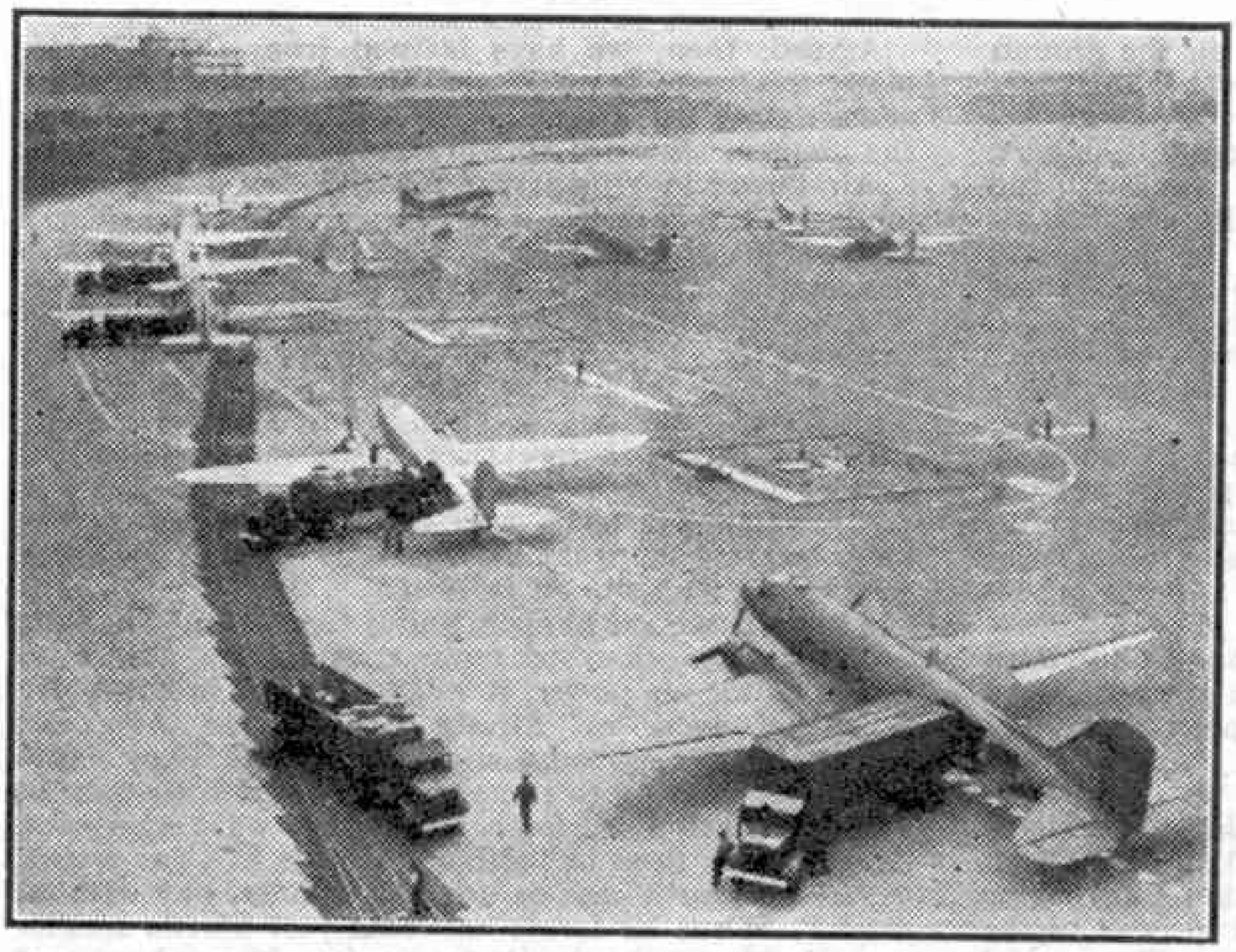
But the British flying boats, operating from Hamburg to Havel Lake, have probably impressed the Russians more than anything else. By carrying great loads of supplies into Berlin and hundreds of under-nourished children out of the city, they have re-affirmed that the large flying boat, far from being finished, will probably be the cheapest and most practical way of coping with ever-increasing air traffic of the future.



This Avro "York" load of beef fillets and of butter occupied the full length of the fuselage and weighed nearly 7½ tons. Photograph by courtesy of A. V. Roe and Co. Ltd.

The Americans have issued impressive figures to demonstrate the economy of using large aircraft. They point out that a task force of only 68 "Globemasters" could haul in the 4,500 tons needed in Berlin each day. It takes 178 "Skymasters" or 899 "Dakotas" to do the same job. Similarly, the "Globemasters" would need to fly only 16,200 hours a month to do the whole job, compared with 42,888 in the "Skymasters" or 158,824 in the "Dakotas." One hundred and eighty "Globemaster" crews would be needed, compared with 465 for the "Skymasters" and 1,765 for the "Daks." And finally, the "Globemasters" would use only 6,804,000 gallons of fuel, compared with 8,577,600 needed by the "Skymasters," or 14,294,000 by the "Dakotas."

These figures do not minimize the magnificent achievements of the "Skymasters" and "Dakotas" on the Air Lift. They do teach an important lesson however—one that is already being exploited by the American Government, who have ordered many giant new Douglas C-124 transports, each two and a half times as big as a "Skymaster," but able to take off from the same short airfields.



Douglas C-47 "Dakota" transport aircraft of the U.S. Army unloading food cargoes into waiting lorries at Tempelhof Airport, Berlin.

Another lesson that will be built into the C-124 has been well proved by the Bristol "Freighters" on the Air Lift. Each aircraft is allowed, on average, only 15 minutes for unloading at Gatow, Tegel and Tempelhof airfields in Berlin; as a result, the "Freighter's" nose-loading doors and low level floor have given it an immense advantage over other aircraft with normal side-loading doors. In fact only the Fairchild "Packet," with tail-loading doors, can compare with the "Freighter" for speedy turn-round.

This business of quick turn-round is of course just as important for commercial operators as it is on the Air Lift, for time wasted on the ground eats deeply into airline profits. The new generation of British and American transports, typified by the General Aircraft "Universal Freighter" and the Douglas C-124, will all have large nose or tail doors; in addition they will carry their own ramps, up which tractors, lorries, cars or tanks can be driven straight into the capacious cargo-holds.

The Fairchild Company plan to go one better, however, by utilizing a detachable fuselage on their new XC-120 transport, on the same lines as that of the well-known Miles M-68 "Box-Car," but on a much larger scale. The XC-120 is similar in general appearance to the "Packet," but its fuselage is in two portions—a small flight-deck nacelle attached to the wing and a large detachable container that fits snugly underneath. The aircraft will fly with or without this container.

The advantages of such a lay-out are obvious. The XC-120 could fly a completely-equipped radio station into a battle-zone, packed inside a container, unhook it and fly back with another container packed with 36 stretcher-patients and their attendants. There need be hardly any time spent on the ground, as the containers could be packed while the machine is airborne, so that they would be all ready for hooking on and flying away as soon as it landed.

They could be made in several different shapes, and having a capacity of 2,900 cu. ft. could be used on the ground as emergency hospitals, messes, mobile headquarters and so on.

So the Air Lift is benefiting our aircraft designers. But, however efficient the aircraft, aircrews and ground personnel might be, the Air Lift would have been impossible without the high skill of the ground controllers, whose radio beams have guided these vast armadas of aircraft to and from Berlin in all weathers, without any time wasted through "stacking" (waiting turns to land over an airport) and without a single collision.

Every pilot is under strict instructions to maintain a rigid flying schedule. He is told the precise altitude and speed at which he must fly, and throughout the journey simply flies down the beams of a series of radio beacons that guide him to a point where he can either see the airfield, or where airport control can "talk him down" with G.C.A. (Ground Controlled Approach) radio in bad weather. As a further safety measure, he must send out regular reports giving his identity, position, altitude and time.

The aircraft fly in "blocks," made up of units of five machines. Taking off at three-minute intervals, the aircraft of each unit fly at 5,000, 6,000, 7,000, 5,500 and 6,500 ft. respectively. Another unit begins to take off three minutes after the last aircraft of the previous one. So there is never less than 15 minutes' flying time between aircraft at the same height.

Of course the Berlin controllers have one great advantage over their opposite numbers at, say, London Airport, as the aircraft approach each airfield from one direction only, following the radio beams, so that they can be brought in to land as soon as they arrive. What is more, if an aircraft is more than half a minute late it is forbidden to land, and has to fly back to its starting point—a procedure that certainly would not please airline passengers who had just flown over from America.

Even so, civilian controllers are undoubtedly learning much from the Air Lift, for it was always believed that G.C.A. landings could not be made at intervals of less than 20 minutes. Now aircraft are being brought into Berlin airfields day after day at three-minute intervals. What this means to the airlines is obvious, for every one of the hundreds of crews on the Lift could form a cadre around which an instrument flight training school could be set up.

Air Vice-Marshal D. C. T. Bennett leaving his Avro "Tudor" 5 at Gatow. Diesel oil totalling 1,500 gall. is being discharged through the flexible pipe leading out of the fuselage door. Photograph by courtesy of A. V. Roe and Co. Ltd.

Agreed, then, we have learned from the Air Lift many lessons to improve aircraft and airline efficiency and safety. But if that is all we have learned, then the greatest lesson of all will have been lost.

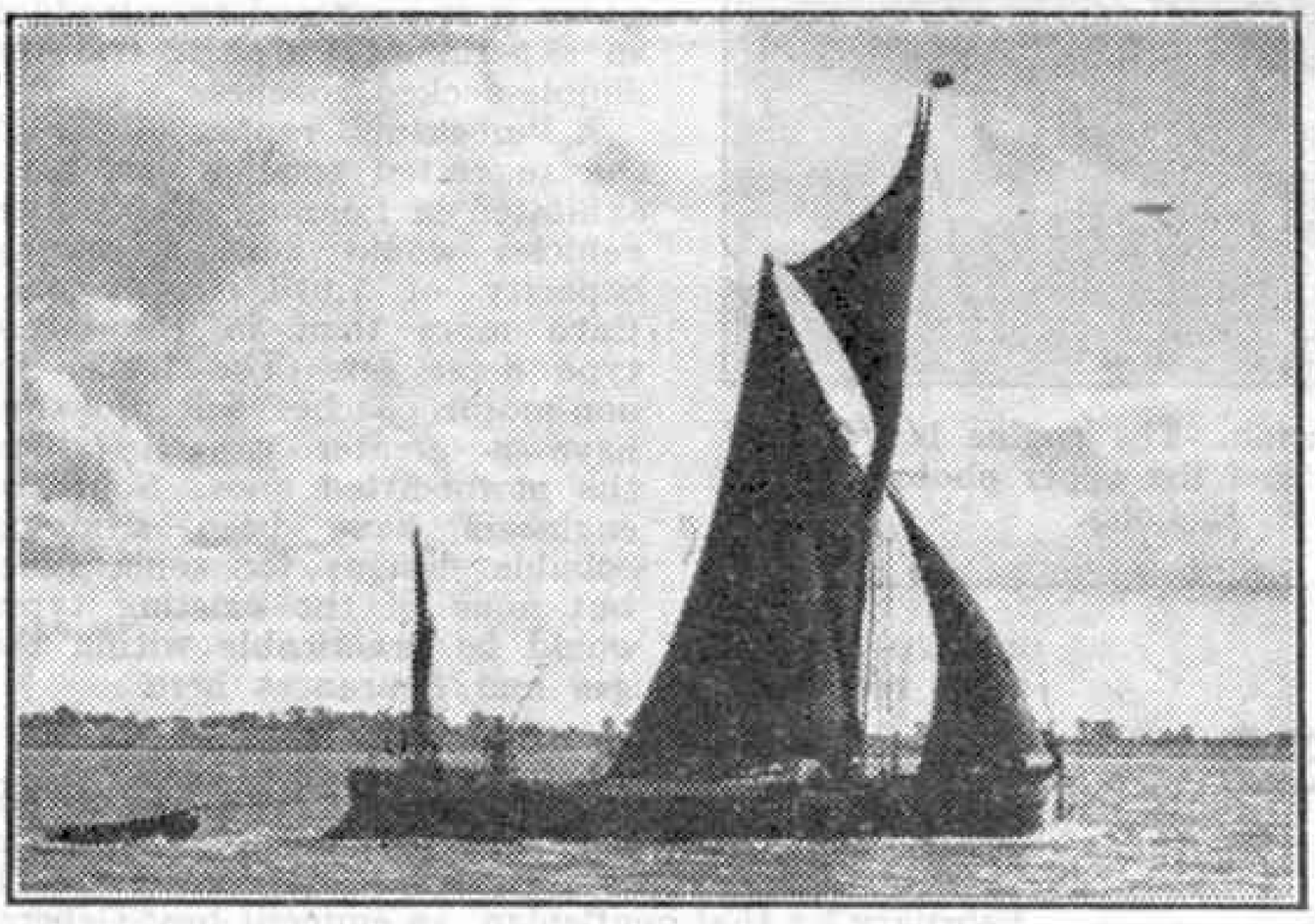
Air Power in World War 1 was a useful adjunct to land and naval power. By the end of World War 2 it had grown to such an extent that, with two devastating atomic strikes, it was able to end that war, making costly land and sea attacks on Japan unnecessary. Having won the war, our air forces were slashed to a mere shadow of the weapons to which we owed our survival. Fortunately the Air Lift was needed before they disappeared altogether. But even now, as Lord Douglas, one of the R.A.F.'s great wartime leaders, said recently: "Unless urgent steps are taken, it looks as if the Royal Air Force will before long die on its feet."

That must never happen, and if the Air Lift has done nothing more than to remind us of the still vital necessity for air power, it will have been worth every ounce of sacrifice. Strong British and American forces threaten nobody, and as Mr. C. G. Grey wrote recently: "It is up to everybody to become air-minded and *want* a strong air force, just as they want cigarettes, or movies, or beer, or football pools, or five-day weeks, or holidays with pay, or, for that matter, pay without work." If our air forces had been just a little smaller we should not be in Berlin to-day. If we have not learned this great lesson of the Air Lift, we may have none of those other things we want to-morrow.

Our Vanishing Sailing Coasters

Spritsail Barges of Thames and Medway

SAILING vessels are fading away from the coastal trade round our shores. The disappearance of these picturesque craft will cause many regrets, and none will be missed by sail enthusiasts more than the spritsail barges of the Thames and Medway. Some of them still survive, but the class is clearly heading for extinction, and those who in days to come remember these vessels will be glad to turn to this splendid book.*



"Henry and Jabez," 46 tons, in the Thames Estuary.

Mr. March has spared no effort to photograph the Thames spritsail barges, to learn more about them from those who built or sailed them, and to record their histories. He does not claim to tell the full story, but his book, which runs to 300 large pages, is a storehouse of accurate information, based on original sources. The author's enthusiasm is infectious, and he writes easily and well, with a wealth of anecdote and reminiscences of men who sailed the barges in their days of prosperity.

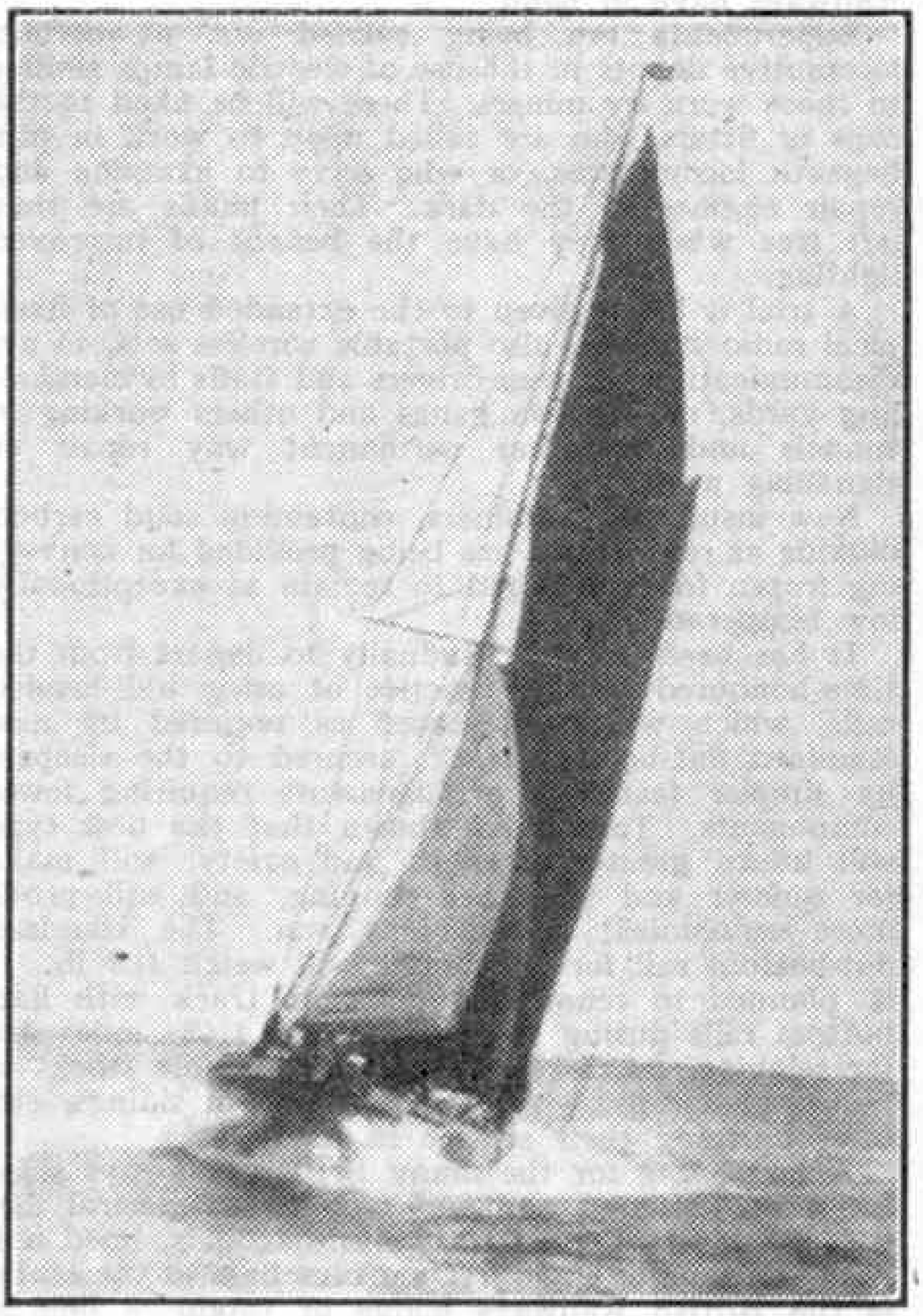
The illustrations are as attractive as the story. There are 129 reproductions of splendid photographs in which every type of Thames sailing barge is seen—sailing along with a fair wind, entering harbour, loading or unloading bricks, concrete and other cargoes, or undergoing re-fitting or repair. Some are even shown as wrecks, but all make brave pictures on which the ship lover will dwell with pleasure. In addition there are many fine drawings.

Mr. March traces the origin of the Thames barge, giving brief descriptions of early examples, with drawings, and then proceeds to explain the difference between stumpies, river barges and coasters, the three main classes. A long and fascinating section on the river barge is followed by one on the coaster, after which we turn to Whitstable and the Kentish barge centres, with attractive stories of the building of barges, and of their cargoes—grain, cement, stone, coal, and even hay, which was carried in great piles on deck, making the barges look like floating stacks. Then follow stirring stories of the great sailing matches of the Thames and Medway, real sporting events. No races have been held since the war, and they may not be revived. If they are, it may be necessary to take the propellers off the entrants, for the barge of the future seems to be one fitted with an auxiliary engine.

We go on through stories of wreck and salvage to the section of the book that deals with construction. Here the expert can revel in the finer points of rigging and sail plans. The characteristic of these barges is the enormous sprit, or "spreet" as the bargemen call it, which holds up the peak of the mainsail. This arrangement allows a topsail to be set over a brailed-up mainsail, a handy arrangement for working across a crowded dock or up a wooded creek. The topsail catches air going over warehouse roofs or treetops and so gives steerage way.

Mr. March also gives readers the benefit of his experience in the making of water-line models, with valuable suggestions for constructing display cases and providing scenic backgrounds. Scale drawings are given of "*Kathleen*" and two other typical spritsail barges, one the ketch "*Martinet*," and the other "*Giralda*," probably the most famous of all racing barges, winner of the Thames race on seven occasions and of the Medway race on five. The book ends with a complete record of these races. There is an excellent index.

Mr. March is to be congratulated on his fascinating book. It is a really delightful production.



"Ash" winning the 1911 Medway Race.

*"*Spritsail Barges of Thames and Medway,*" by Edgar J. March. M.S.N.R. Published by Percival Marshall 30/- net*

A north to west express passing Flax Bourton. The engine is "Castle" class No. 5044 "Earl of Dunraven." This and the upper photograph on the next page are by C. R. L. Coles.

Railway Notes

By R. A. H. Weight

National News

We are able this month to announce several interesting innovations and developments which British Railways have in hand.

Experiments are being carried out at certain locomotive depots in the use of electric lamps similar to those worn by miners. These will be fixed to the caps of fitters who are called upon to work in pits beneath locomotives, or who have to examine and repair engines in the dark. Their hands are thus left free while they have the benefit of improved lighting.

A trial is being given to the extended use of fixed local radio stations, also portable wireless sets, to aid communication between drivers and staffs in marshalling yards, or between gangs and others working in tunnels and on other permanent way repair or signalling work.

New insulated containers, containing solid carbon dioxide as refrigerant, are being provided for conveying frozen foods required to remain at exceptionally low temperatures.

It has been decided gradually to depart from the time-honoured British practice of using bull-headed rails, which will be replaced as required by new standard flat-bottom track, secured to the sleepers by simpler fastening arrangements requiring fewer components. Tests have shown that the new type will afford greater strength and safety, will make for quieter and smoother running, and will prove more economical in the long run. The standard flat-bottom rail for fast traffic will weigh 109 lb. It is planned to renew 463 miles of track with flat-bottom rails during 1949, out of the 1,484 miles due for relaying, as there are still considerable stocks of bull-headed rails, which can be used in sidings, etc. after finishing their service in main lines.

A house flag for the many British Railways ships has been designed and will soon be in general use; it has a blue ground with white diagonals, lined red, with white outer edging. On a blue base in the centre is the British Railways badge or totem, a lion in yellow astride a wheel in red and white.

Double Decker Trains to be Tried

Double-decker railway coaches have been used a good deal around Paris, in the U.S.A. and in places where platforms are lower and clearance gauges more generous than in Britain. By various means the British railway companies have greatly intensified their capacity for handling passenger traffic at peak hours with both steam and electric traction, but on certain routes there is still overcrowding. This is so on the S.R. London-Dartford lines, where it is proposed to introduce an experimental electric train of double-decked coaches.

A "mock-up" replica of one of the suggested coaches has been exhibited in London. Eight such vehicles would have a seating capacity of 1,016, about one-third more than in the latest type 8-car set. The trailer or non-motor coaches will probably have a greater capacity than the motor-fitted ones. Southern engineers have been studying possible designs for some time, but none of the existing types in other countries would be practicable within the more restricted gauges and clearances here.

Southern Locomotive News

The latest "Battle of Britain" class 4–6–2 No. 34090, painted and lined in S.R. passenger style, was named *"Sir Eustace Missenden"* at Waterloo in February by that gentleman, an eminent past General Manager of the Southern Railway and now Chairman of the Railway Executive. A guard of honour was formed by members of the staff who distinguished themselves by brave acts during the recent war. The engine carries the coat-of-arms of the Southern Railway on the side sheeting as a tribute to the past. The new British Railways' totem appears on the tender of this engine and of "Merchant Navy" No. 35024, named *"East Asiatic Company,"* which is painted light blue, with black and white lining in place of the horizontal red lines first used.

Names recently affixed to light "Pacifics" include No. 34030, *"Watersmeet"*; No. 34028, *"Eddystone"*; No. 34032, *"Camelford"*; No. 34033, *"Chard"*; No. 34044, *"Woolacombe"*; No. 34045, *"Ottery St. Mary"*; No. 34063. *"229 Squadron"*; No. 34077, *"603 Squadron"*; and No. 34088, *"213 Squadron."*

Eastern and North Eastern Regions

"A3s" Nos. 60050–1, 60054 and 60111 are at Neasden and Nos. 60048–9, 60053–4, 60061, 60090 are at Leicester, thus inaugurating a "super-Pacific" era on the named expresses and other trains of the Great Central Section. The last N.E.R. "Atlantic," No. 2970, has been withdrawn. It was of class "C7," of which there were originally 50, all with three cylinders, forming the well-known and handsome North Eastern "Z" class. Two were rebuilt by the L.N.E.R. with articulated boosters as class "C9." Prior to the three-cylinder engines 20 two-cylinder N.E. "Atlantics" had been built, and two compounds. These were classed by the L.N.E.R. "C6" and "C8" respectively; both classes are now extinct, as is class "J75," Hull and Barnsley 0–6–0T.

New "A1" 4–6–2s lately completed were No. 60123, built and shedded at Doncaster and No. 60142, built at Darlington, allocated to Gateshead. "A3s" are working from Leeds Neville Hill shed. Some rebuilt and unrebuilt "Sandringhams" are being painted green. Those fitted with 225 lb. per sq. in. boilers and retaining three cylinders have a tractive effort of 28,553 lb.

Some 170 engines stationed at former Cheshire

Lines Committee sheds, have been transferred, on loan, to the London Midland Region, Trafford Park District. They are mostly G.C.R. types, including nearly all the "D9" and "J10" engines, and the remaining "B9" 4-6-0s.

Another Midland "Jenny Lind" Picture

Last month, in the article "*A Historic Locomotive Photograph*," we described the smart little 2-2-2 "Jenny Lind" locomotives popular on our early railways nearly 100 years ago. Our illustration then used of Midland "Jenny Lind" engine No. 728 was a reproduction of what was thought to be the only such photograph in existence. Another has been discovered by a Motive Power official, however, and this we are glad to reproduce here, as it shows more detail. The engine shown, No. 1010, became so numbered in 1868, having been built in 1856 as M.R. No. 112, with 6 ft. driving wheels and 15 in. by 20 in. cylinders. The engine number appears on the side of the boiler.

London Midland and Scottish Notes

New engines have been placed in service as follows: class "5" M.T. 4-6-0; Nos. 44728-9, stationed at 23C, Southport; class "4" 2-6-4 M.T. tank, No. 42183, 16C, Leicester; Nos. 42184-5, 16A, Nottingham; 2-6-0, Nos. 43023-5, 2D, Nuneaton; and No. 43026, 5B, Crewe South. No. 45534 "*E. Tootal Broadhurst*" is another "Patriot" converted to "6P."

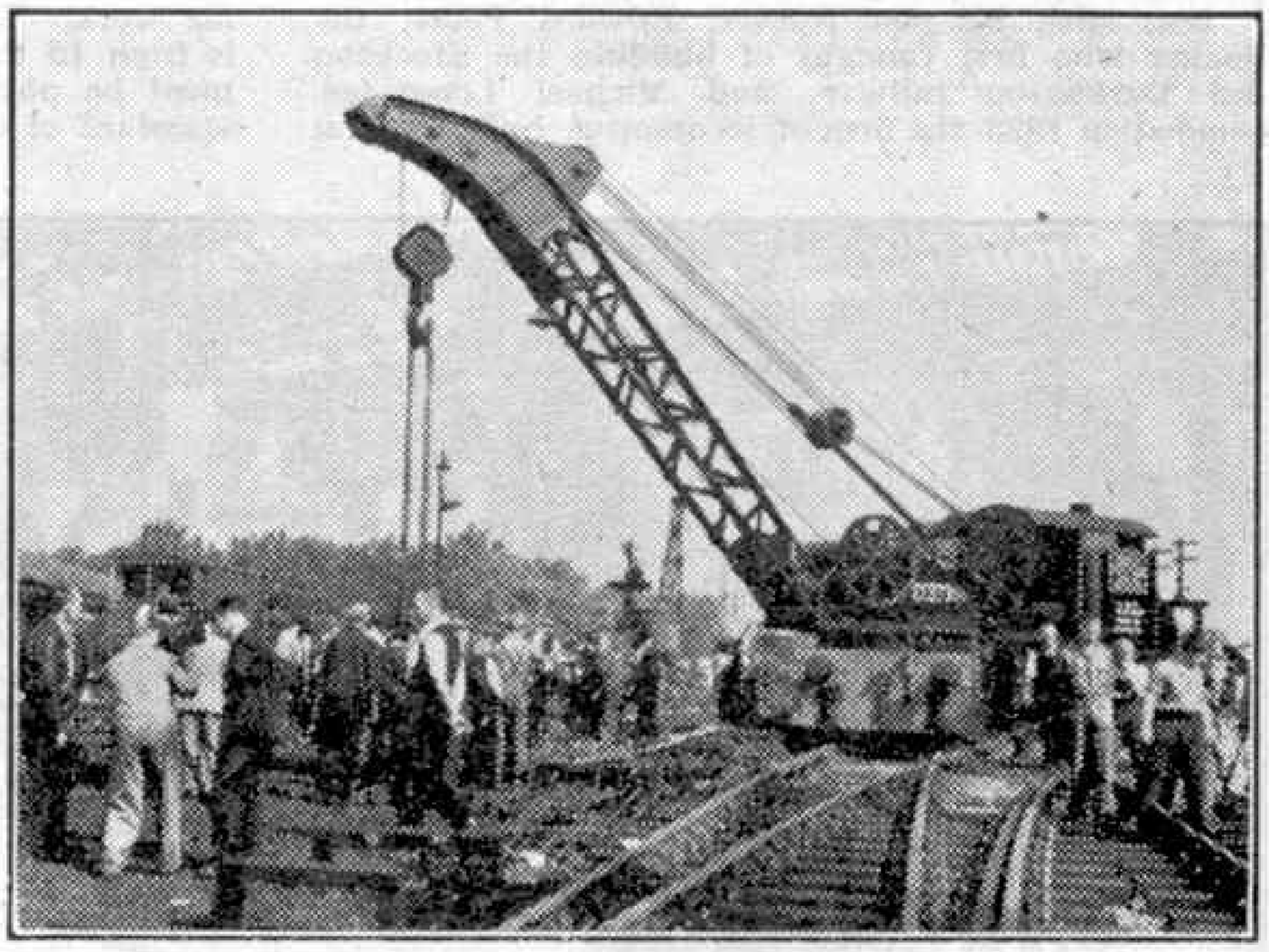
Large scale track relaying and lineside repair works have recently been in hand. A tunnel subsidence caused temporary closing of the Leicester-Birmingham line.

In the Scottish Region, the Motive Power districts have been reorganized, like other administrative departments, to include former L.M.S. as well as L.N.E.R. depots. The numbers range from 60 to 68, followed by letters indicating separate sheds within each district.

Western Tidings

Further modified "Halls" in service are numbered 6996-8, and named respectively "*Blackwell Hall*," "*Bryn-Ivor Hall*" and "*Burton Agnes Hall*." Construction is continuing with Nos. 7900-29, following on No. 6999. New 0-6-0T engines Nos. 6766-9 also have been completed. "Castle" class No. 5075 "*Wellington*" is stationed at Chester, from which shed there is a regular passenger train working to Oxford and back.

No. 2935 "*Caynham Court*," of the later "Saint" class two-cylinder 4-6-0 series, lately withdrawn, had since 1931 been fitted with rotary-cam poppet valve gear as an experiment. The use of this gear was not developed on the G.W.R.



Track relaying in progress with the aid of a steam breakdown crane. This view was obtained in the course of the relaying of the approach to St. Pancras station some time ago.

More London "Tube" Extensions

The London "tubes" are getting farther out into the open air. Extensions of the Central line at each end were brought into use just before the end of 1948. Westward, in Middlesex, trains now run on from Greenford to Northolt and West Ruislip over new electrified tracks alongside the former Great Central and Great Western Joint main line to the North. Eastward, in Essex, the Central services have been extended from Woodford to Loughton and also to Hainault, running over ex-L.N.E.R. suburban tracks and replacing Liverpool Street steam services which, apart from a few night goods and similar trains, are now restricted to the Loughton-Ongar run, farther out of London.

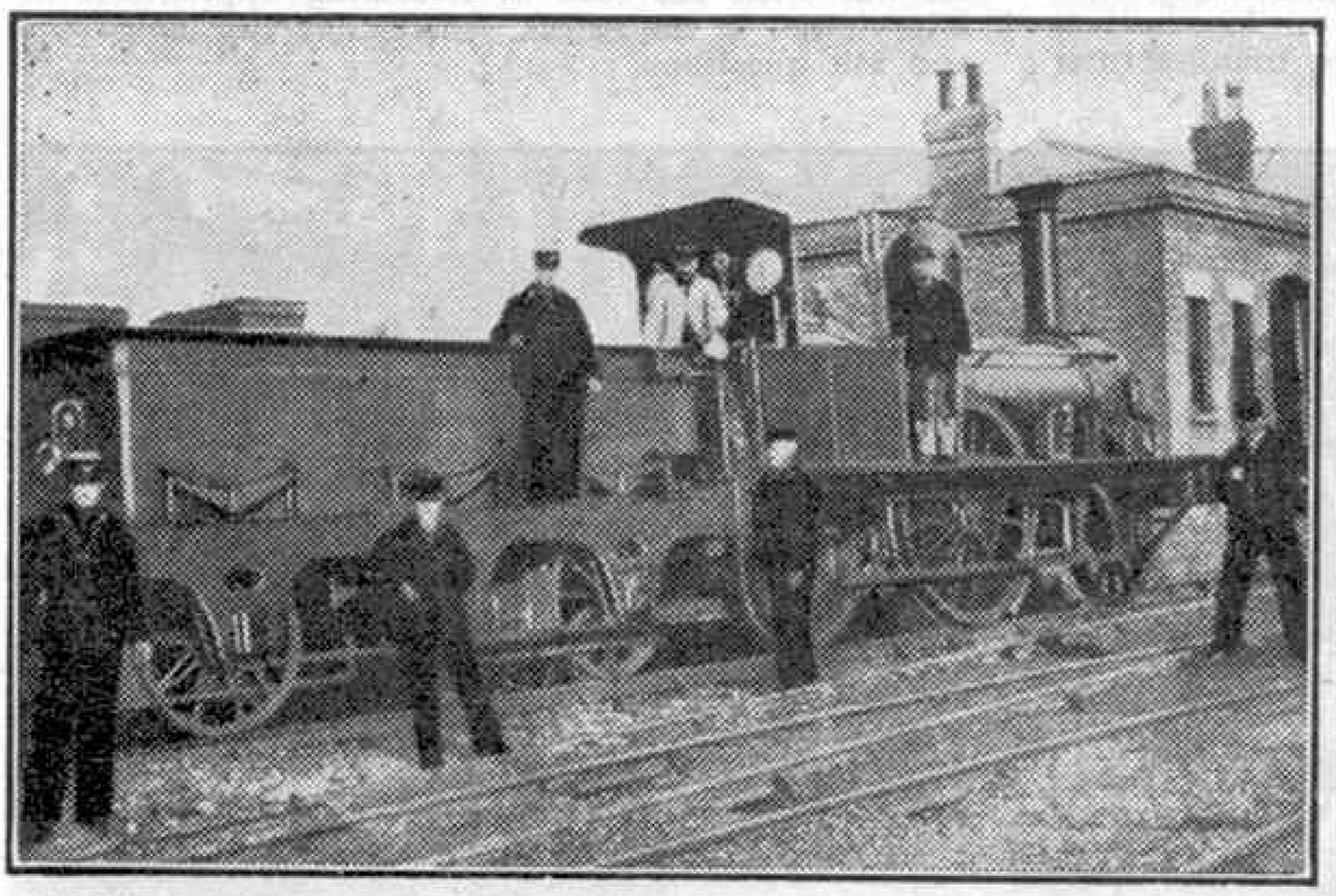
Central line trains now serve 40 miles of route and 46 stations, including those in the heart of the city and west end of London. Much remarkably rapid and difficult engineering and constructional work was involved.

Naming of Locomotives

The Railway Executive have no intention of removing the existing names on locomotives, or of discontinuing the general practice of naming locomotives in suitable cases.

* * * *

Satisfactory progress is being made on the Liverpool Street-Shenfield electrification scheme. It is expected that electric train services will be fully in operation by the end of the year. New electric nine-car trains are in course of delivery to Ilford depot.

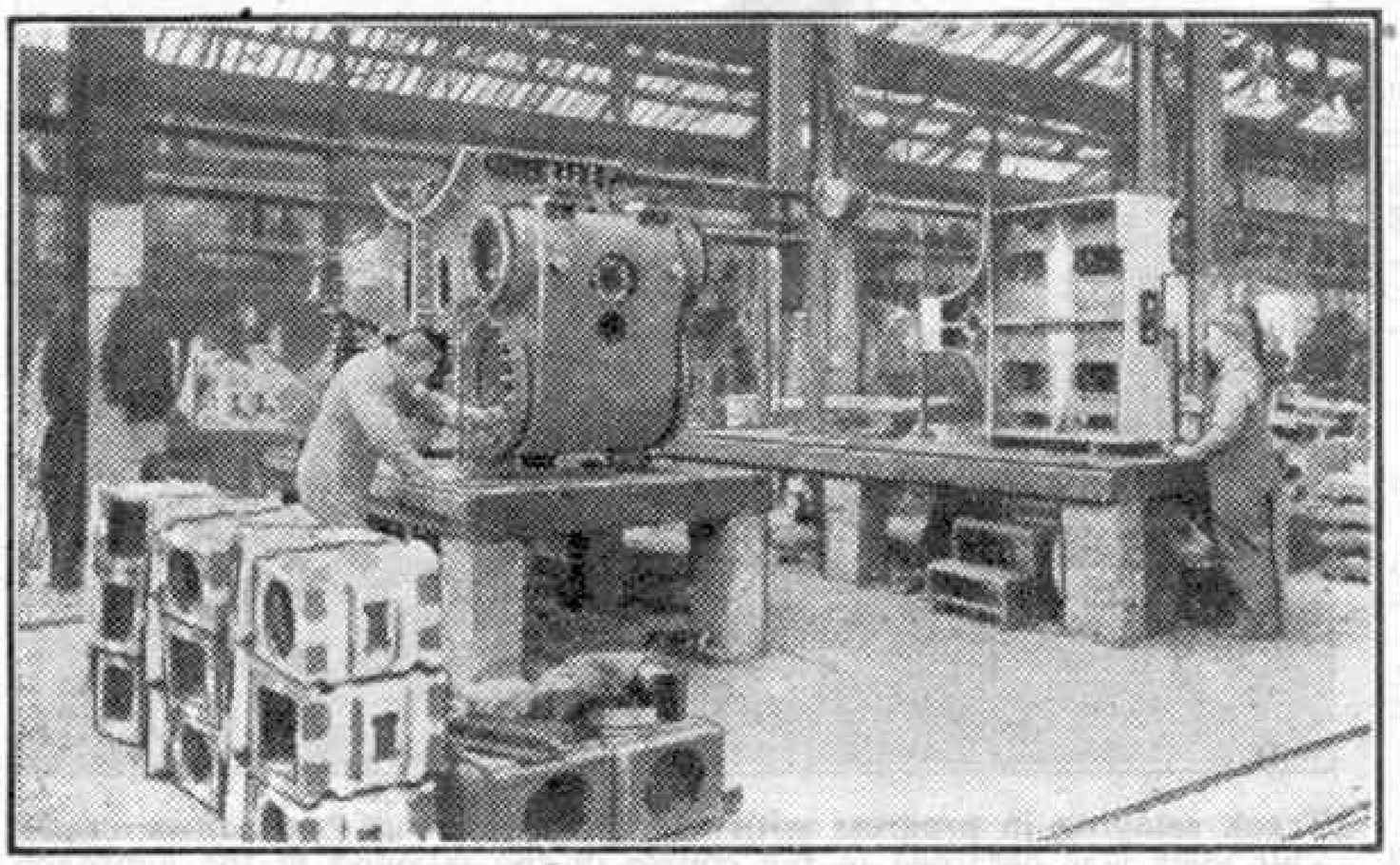


This illustration is taken from the most recently discovered view of a Midland "Jenny Lind" locomotive referred to in the accompanying paragraph. British Railways official photograph.

Engineering Opportunities

Apprenticeships in Locomotive Building

IN the very early days of railways, George Stephenson, with his son Robert, Edward Pease, the Quaker who first thought of building the Stockton and Darlington railway, and Michael Longridge, founded in 1823 the firm of locomotive builders that became known as Robert Stephenson and Co. Ltd., with works at Forth Street, Newcastle-on-Tyne. Later a second factory was built at Darlington, and in 1937 came a union with R. & W. Hawthorn Leslie and Co. Ltd., of Newcastle-on-Tyne, another pioneer firm of locomotive builders. The joint enterprise is now known as Robert Stephenson and Hawthorns Ltd., and engines built by the two firms have hauled trains not only in Great Britain, but also in practically every country in the world.



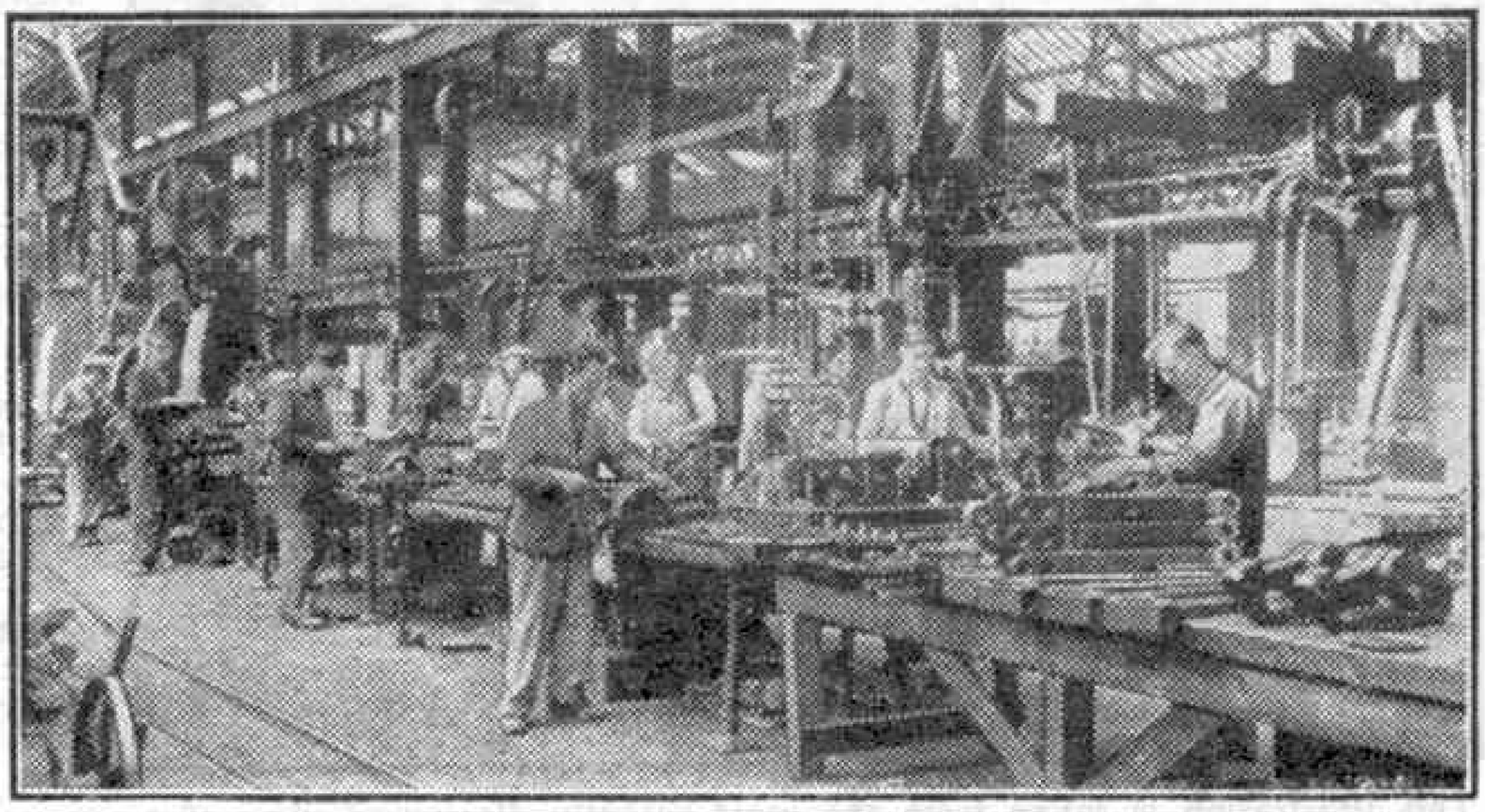
Checking a locomotive cylinder on the marking out table. The illustrations to this article are reproduced by courtesy of Robert Stephenson and Hawthorns Ltd., Darlington and Newcastle-on-Tyne.

An order for 50 engines is considered a good one, and because of this limitation it would not be economical to build up the special machinery with which partly skilled labour could turn out locomotives by mass production. The locomotive manufacturer therefore must rely on the skill of engineering craftsmen, from the forging of connecting rods and similar components and the shaping of plates for boilers to the final assembly of the parts into a working engine.

The locomotive builder begins his career as an apprentice, and Robert Stephenson and Hawthorns Ltd. have a well-planned scheme by which the modern boy can enter this great industry. There are two types of apprenticeship, known respectively as engineering and trade apprenticeships. An engineering apprentice is given a suitable period in most departments of the works and learns something of most trades, qualifying himself by experience and study for general engineering work. The normal period of his apprenticeship is from 16 to 21 years of age, and to begin with he must be physically fit and have attained a certain standard of education. No premium is required, but there is a probationary period of three months, the main purpose of which is to make sure that the boy himself is satisfied that he wishes to undergo the training.

Trade apprenticeships also are open to boys of 16, but boys wishing to begin earlier may do so. Employment is then found in offices, stores and shops, and in this way they gain valuable insight into the various trades open to them. This is helpful when they have to decide which of the many engineering trades, such as boilermaking, forging, moulding, fitting and erecting, to mention only a few, they will enter. Apprenticeship continues for five years, and at the end of this period the boy has become a craftsman skilled in the trade he has chosen and usually with some knowledge of another, while the trade apprentices who show the necessary skill and aptitude may become engineering apprentices. All are expected to attend night classes at the local technical college, and in certain instances they take day classes one day in the week. Fees are paid by the firm, who also give bonuses to apprentices who pass the course examinations and attend regularly. A five-day week of 44 hours is worked and normal rates of pay are given, with the usual paid holidays.

Any reader of the "*M.M.*" who is interested in the prospects of entry into this interesting industry can obtain further information on these apprenticeship schemes by writing to Robert Stephenson and Hawthorns Ltd., at Locomotive Works, Darlington, or Forth Banks Works, Newcastle-on-Tyne. All who set out with the idea of becoming apprentices are interviewed at the works, where they can look round and ask questions.



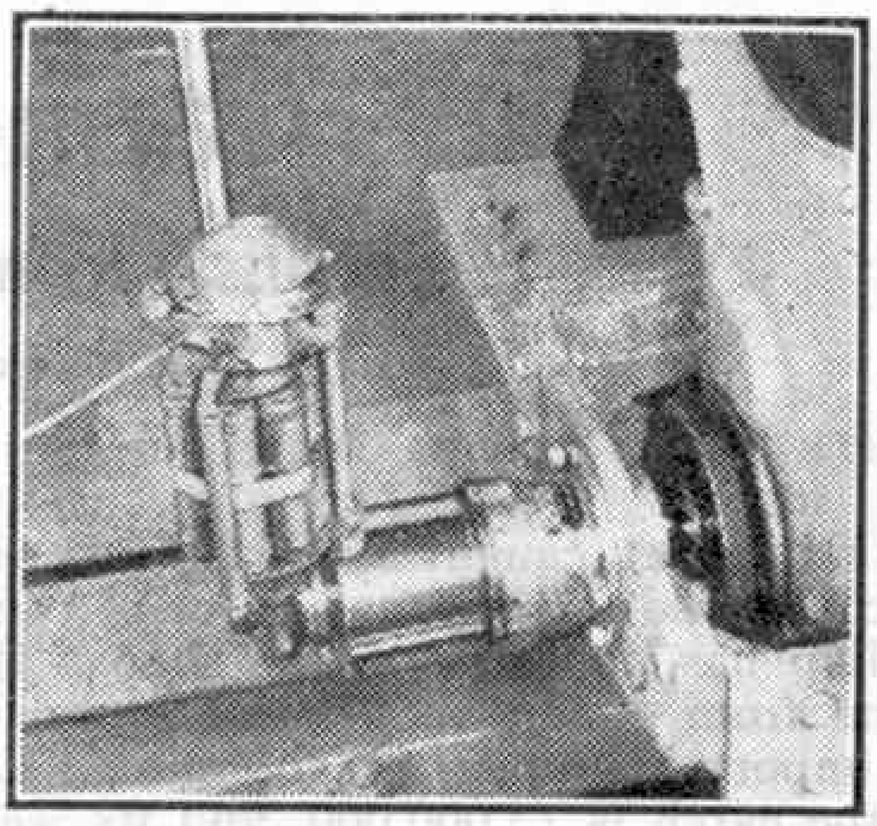
Fitting valve motion details in the fitting shop

Cartridge Starting

For Diesel and Petrol Engines

PETROL and diesel engines cannot start by themselves; they have to be turned in some way. The earliest, for example the petrol engines of motor cars of the beginning of the century, were started with handles, and swinging these to start an engine, especially on cold mornings, was often hard work and uncertain in results. As engines became larger and more powerful, self-starters were introduced. This name is not really accurate, for what was installed was an electric motor driven by a heavy battery.

An electric starter is satisfactory on motor cars and lorries, for which electrical equipment, including a battery, is necessary for other purposes, but there are many larger types of engine for which the provision of such equipment is wasteful. Now a very simple and easy means of starting internal combustion engines of all types is available in which no motor or battery is needed, thus giving a great saving in weight and also in cost. The power required in this simple method is provided by the burning of a slow explosive packed in a cartridge. The pressure of the hot gases produced is used to push a piston along a cylinder, and this travels along shafts that are provided with spiral splines and consequently are turned round.

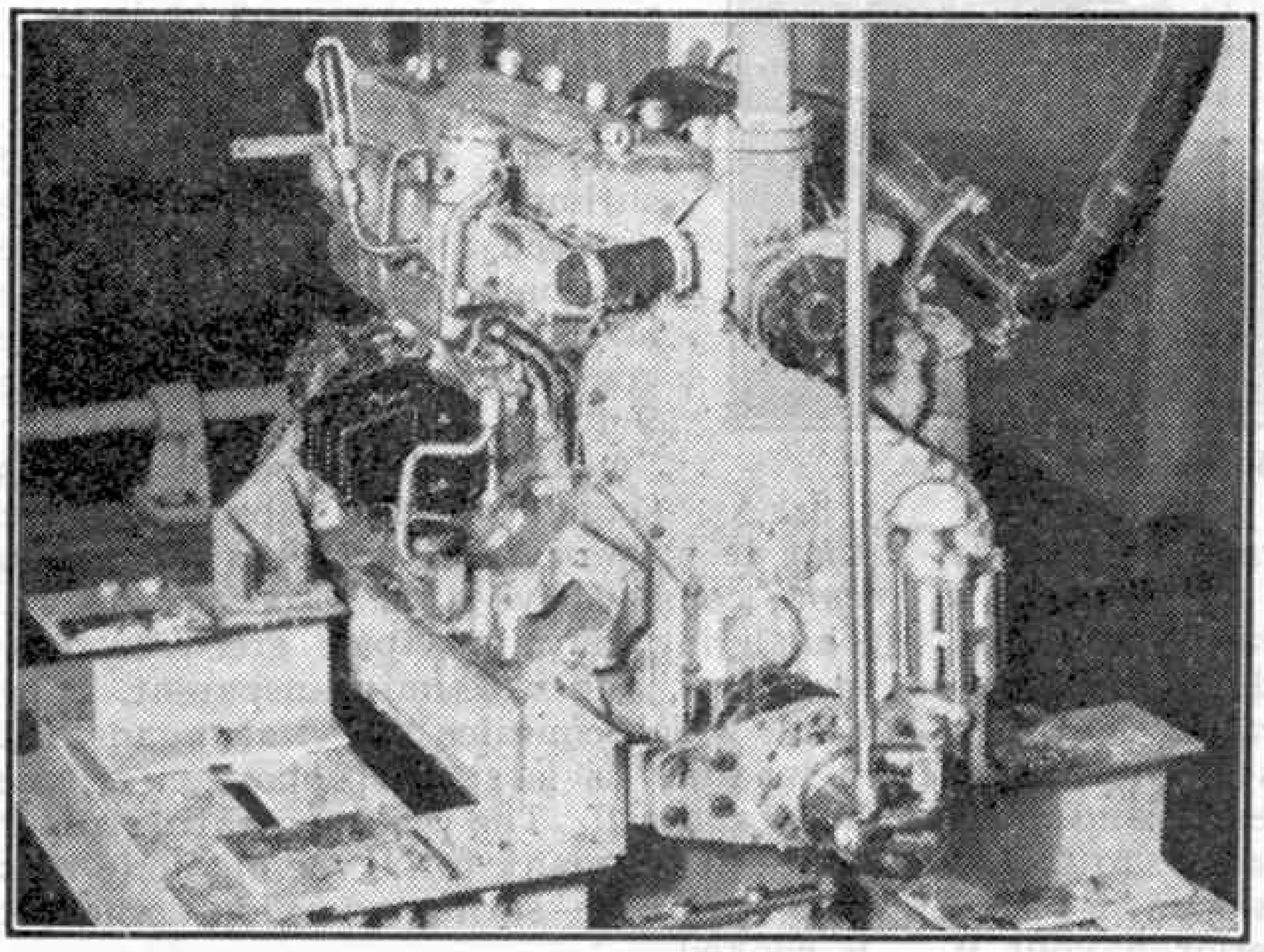


Plessey cartridge starter mounted on an engine. Illustrations by courtesy of the Plessey Company Ltd., Ilford.

The first movement of the piston brings the teeth of a starter jaw at the end of the shafts into mesh with teeth on the end of the crankshaft of the engine to which the starter is fitted, with the result that the engine itself is given two or three turns at a very high rate.

The equipment is the product of the Plessey Company Ltd., Ilford, and the upper illustration shows a typical Plessey cartridge starter mounted on an engine, with the teeth of the starter jaw showing on the right. Above the opposite end of the starter cylinder is a revolving breech that carries a magazine of six cartridges, each of which in turn can be brought into position for operating the starter by means of the control provided. The point from which the unit is controlled may be in any position remote from the starter, and the only time when the unit requires handling is when the breech needs re-loading with cartridges. The cartridges are charged with the slow burning explosive and are fired electrically from a dry battery with push button control, or by percussion, in which case a cable control is used. Low temperatures do not affect them; recent tests on a diesel engine have given satisfactory results at 15 deg. C. below freezing point.

Cartridge starters are now available for every type of internal combustion engine.



This Perkins diesel engine was easily started by a Plessey cartridge starter at a temperature of 15 deg. C. below freezing point.

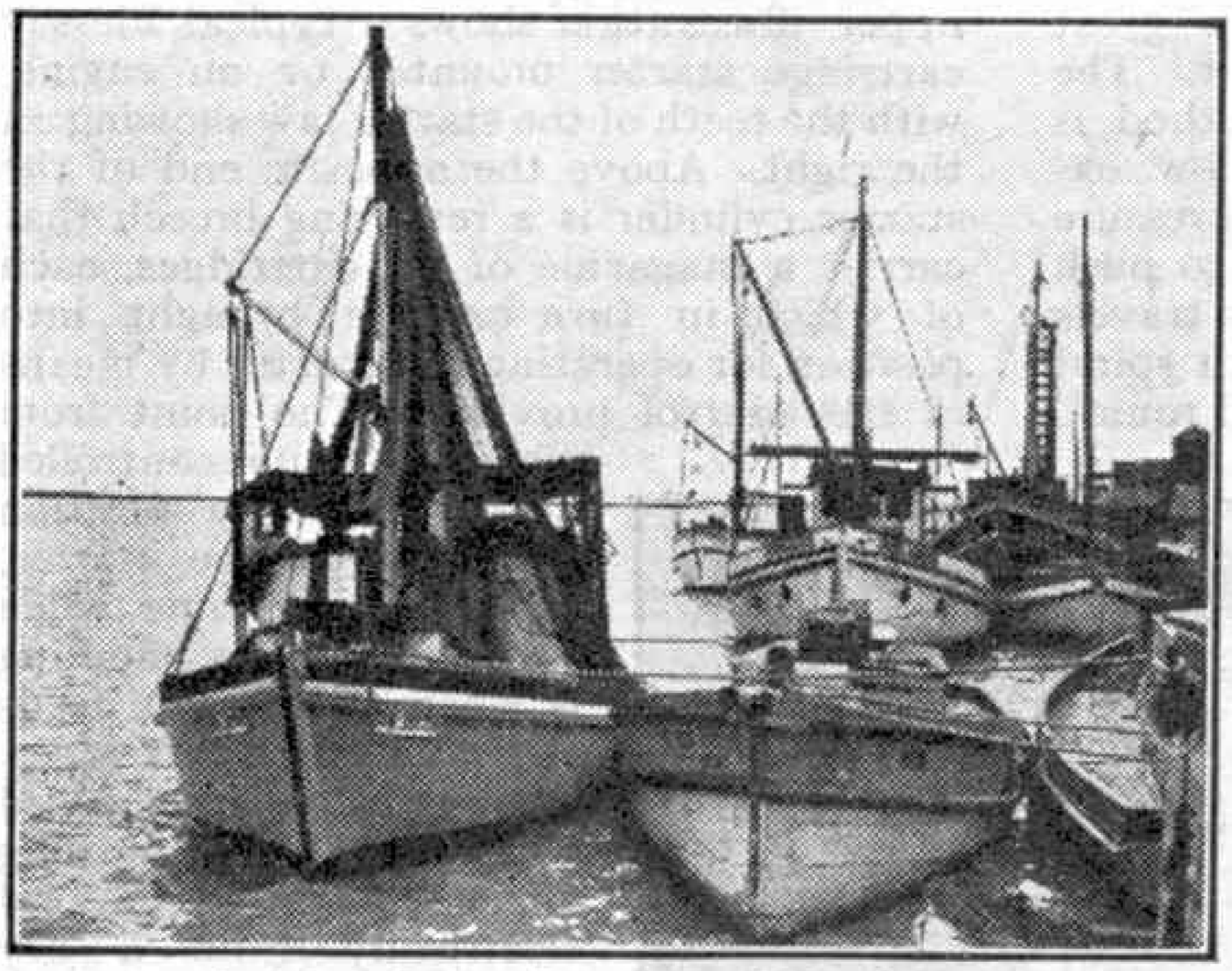
Canned Shrimp

Shellfish from the Gulf of Mexico

By Harold J. Shepstone, F.R.G.S.

THE fresh shrimps which are on the market in this country are, for the most part, caught by Dutch fishermen. Recently, however, a new form of canned shrimp has appeared in the shops. These come from America. There shrimping is an important industry. The annual value of the catch is £3,000,000, and its weight 150,000,000 lb.

The pleasant sight of holiday-makers going shrimping with push-nets has led to the mistaken belief that the shrimp is a shallow water fish, and that it is natural for him to be found among the pools in the rocks on the sea-shore. But this is not so. If you mention the subject to a real shrimper he will soon tell you that push-netting is a seaside amusement. Shrimp-catching is a highly skilled occupation and, like fishing generally, is fraught with danger.



A shrimp fishing fleet in the Gulf of Mexico.

Half a century ago the shrimp was little known in America outside the regions bordering the southern waters where it makes its home. Now it is in demand all over that great continent, and the demand is rapidly spreading to other countries. The shrimp has gained recognition because of the superior flavour it imparts to many dishes, the high nutritive quality of its protein, and its high content of essential minerals.

Shrimping is by far the most important fishing industry in the waters of the Gulf of Mexico. Some 85 per cent. of all the shrimps caught in American waters come from the Gulf, the waters of the State of Louisiana contributing no less than 66 per cent. The shrimp industry has added greatly to Louisiana's commercial progress. It provides work for most of the population of Terrebonne parish, either in the catching or in the processing in the factories at Houma. Terrebonne, a name that in French means "good earth," is the largest parish in Louisiana, with an area of 1,284,230 acres.

Until some eleven years ago Louisiana fishermen sought their shrimps in the State's rivers and lakes. The supply was sufficient for them to build up a considerable industry, with dried shrimp a leading product for export. Then the Florida fishermen, finding the large or "jumbo" shrimp getting scarce in their waters, pushed farther into the Gulf waters south of Louisiana to find great shoals of large shrimps, a veritable marine gold-mine in fact. This has revolutionised the industry. The shrimp is taken well off-shore in water 30 to 90 ft. deep.

There are several kinds of shrimps, the common, the grooved and the sea-bob. The first-named variety is much larger than the shrimp as we generally know it, being from 9 to 11 in. in length and very "meaty." In appearance it is similar to the lobster, except that it is very much smaller and much more conservative with respect to claws. The living shrimp is pale green or grey in colour and is semi-transparent. The head, which contains the vital organs and is inedible, is large in proportion to the body and tail. The pink or reddish colour assumed by many to be the characteristic colour of the shrimp develops when it is cooked.

The shrimp's span of life is a very short one of from one to two years. It spawns

Shrimp frozen in blocks of 120. They were caught and frozen at Brownsville, Texas, and shipped to Los Angeles, Calif., where this photograph was taken.

in offshore waters, sometimes as far out as 50 miles, and estimates indicate that a shrimp may lay as many as half a million eggs during the season. These are very tiny; a hundred of them, side by side, would just span an inch, and they are as transparent as glass. They sink to the bottom and probably remain there for the 12 to 15 hrs. between spawning and hatching.

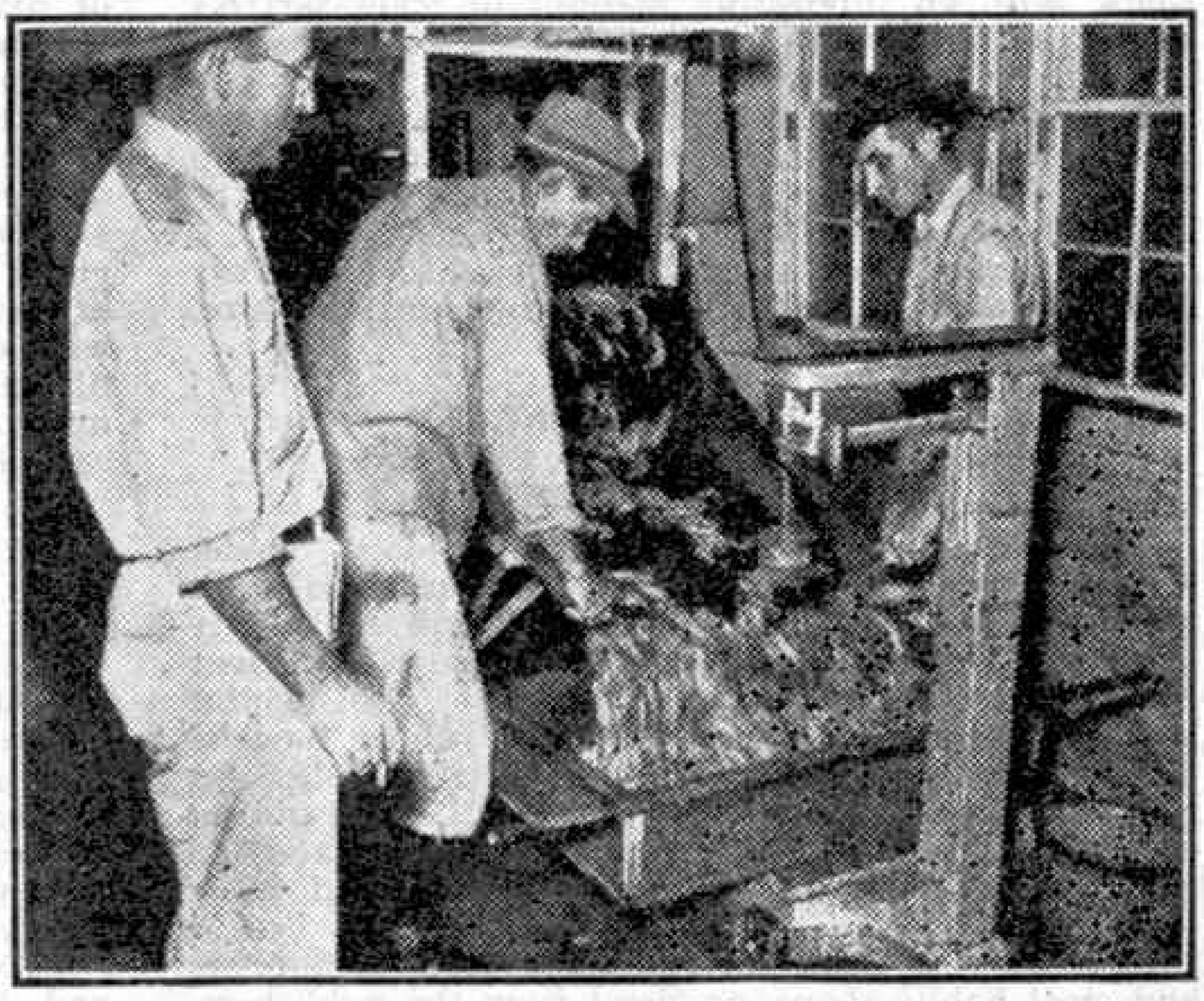
The shrimp can swim from the moment that it is hatched, but the little creatures do not look at all like the parent shrimp. In a few days they grow to a length of about a quarter of an inch and they quickly make their way to the surface waters, where they are carried along by the currents, eventually making their way to the protected bays and other inshore waters. As they approach the adult state they abandon surface travel and become bottom feeding like their parents.

The spawning season of the shrimp extends from March or April until August or September, so that young shrimp are arriving in the inland waters throughout the entire summer. Those earliest to arrive reach commercial size during July, and by September, practically the entire catch, as far as inland shrimp are concerned, is made up of shrimp spawned the previous spring. The smaller shrimp spend the winter in the protection of the inland waters, but the larger ones seek escape from the cool water of the bays and lakes in the warmer water of the Gulf.

Shrimping is of such commercial importance to the States bordering the Gulf of Mexico that a great effort is made to protect the fisheries from unwise exploitation. The States concerned have adopted conservation laws, designed to protect the shrimp. In Louisiana, for example, there is a close season between 15th December and 15th March on the inland waters, and on both inland and outside waters there is a close season between 10th June and the second Monday in August.

There is a distinct difference between inshore and offshore fishing. The inshore fishing boat is smaller and is manned by a crew of two, the captain and a helper. It is about 30 ft. long and has a beam of 8 ft. The cabin is aft and there is a mast, but no boom. The larger offshore boat carries a crew of three or four as well as a captain and an engineer. It is about 60 ft. long and has a beam of 18 ft. and is powered by a diesel engine. There is a winch for handling the heavy nets. The cabin is forward and there is a mast with a boom. Inshore boats rarely stay out for more than two or three days, but offshore boats will be provisioned and iced for much longer voyages, a month or more. The catch of an inshore boat, if luck is good, is 60 barrels of shrimp, and for an offshore boat 100 barrels.

A variety of nets are employed for catching the shrimp. It depends whether it is inshore or (*Continued on page 164*)



Shrimps being thoroughly washed before going on the scales.

BOOKS TO READ

Here we review books of interest and of use to readers of the "M.M." With the exception of those issued by the Scientific and Children's Book Clubs, which are available only to members, and certain others that will be indicated, these should be ordered through a bookseller.

"THE HELICOPTER"
By Col. H. F. Gregory
(Allen and Unwin. Price 18/-)

Col. Gregory, the author of this book, of which we are reviewing the British edition, was one of the first men in the United States to recognize the importance of the rotating-wing machine or helicopter, and to study and promote interest in it. He has made many outstanding flights, including the first transport of air mail by helicopter in that country, the first helicopter landing on the deck of a moving steamship, and record altitude and long-distance flights by helicopter.

After very briefly surveying the earliest experiments in helicopter construction and flight, the success of the first Sikorsky helicopter in 1909, the book deals almost entirely with helicopter development in the United States, from the first U.S. Army helicopter built in 1922 to the several types in production in 1947. Barely five and a half pages suffice for the author to summarise British and French achievements in helicopter research and development, a summary dismissal that will disappoint many who know of the success that has been achieved on this side of the Atlantic. As a history of American helicopter development, however, the book is a welcome addition to aeronautical literature. It is illustrated with many interesting half-tone photographs and line drawings.

"A HISTORY OF THE COCKERMOUTH, KESWICK AND PENRITH RAILWAY"
By W. McGowan Gradon (5/-)

Mr. Gradon has followed up his books on the Furness and the Ravenglass and Eskdale Railways with this story of the Cockermouth, Keswick and Penrith line. This small system owed its existence to the iron trade, carrying iron ore and pig iron from West Cumberland to Penrith for transport to Durham and South Yorkshire, and bringing back coke for the West Cumberland blast furnaces. This mineral traffic has had its day, but the line still provides a useful link for passenger traffic purposes.

The book first deals with the pre-grouping history of the line, and then follows a description of the route, with an interesting account of train services and working practices. A series of post-grouping notes brings the story to a close.

A map and gradient profile make it easy to follow the account, and well-reproduced illustrations help to give something of the special atmosphere of the route, which still has an "old-time" aspect.

Copies can be obtained from the author at Pear Tree Cottage, Oldfield Lane, Altrincham, Cheshire, price 5/4 including postage.

"MODEL PLANES ANNUAL"
Edited by B. Dean and R. Warring
(Ian Allan Ltd. 2/6)

This is the second book in Ian Allan's "Model Aviation" series, and model aircraft enthusiasts in search of new aircraft to construct will find in it details and plans of 10 first-rate models designed by acknowledged experts. There are also helpful articles on balsa, airfoil sections for rubber models, control-line flying and radio-controlled models, and news of model aircraft activities in all parts of the country. The book is illustrated by many excellent half-tone photographs of model aircraft and their constructors.

Copies of this book are obtainable from booksellers and most hobby shops, or direct from the publishers, Ian Allan Ltd., Mail Order Department, 33, Knollys Road, London S.W.16, price 3/- including postage.

"FROM AIRSHIP TO JET PROPULSION"
By Bonner W. A. Dickson
(Naldrett Press Ltd. 8/6)

Although this book sets out to tell no more than the story of one firm in the British Aircraft Industry, Vickers Armstrongs, it covers such a wide field that there is scarcely an aspect of the development of flying that is not included in its 78 pages. Vickers' interest in aviation dates back to 1908, when they began work on their first airship, H.M.A. No. 1. Three years later they extended their activities to cover heavier-than-air machines, and also formed a Flying School at which such famous airmen as Marshal of the Royal Air Force Lord Trenchard and Air Chief Marshal Lord Dowding were trained. Supermarine, the other company now forming Vickers-Armstrongs' Aircraft Section, came into the story in 1912, and from the start specialized in sea-going aircraft.

Famous exploits by aircraft built by the two companies are recalled—the first award of a Victoria Cross to a pilot of the Royal Flying Corps, the first non-stop flight across the Atlantic, and the first flights from Britain to Australia and South Africa. Then there were the Schneider Trophy victories and World Speed and Long-Distance Records. All these led up to the development of the "Spitfires" and "Wellingtons" that did so much first to save Britain in 1940, and then to enable her to hit back at our enemies. The book is splendidly illustrated by more than 90 excellent half-tone photographs. J.W.R.T.

"RAILWAY AND OTHER STEAMERS"
By C. L. D. Duckworth and G. E. Langmuir
(Shipping Histories Ltd. 30/-)

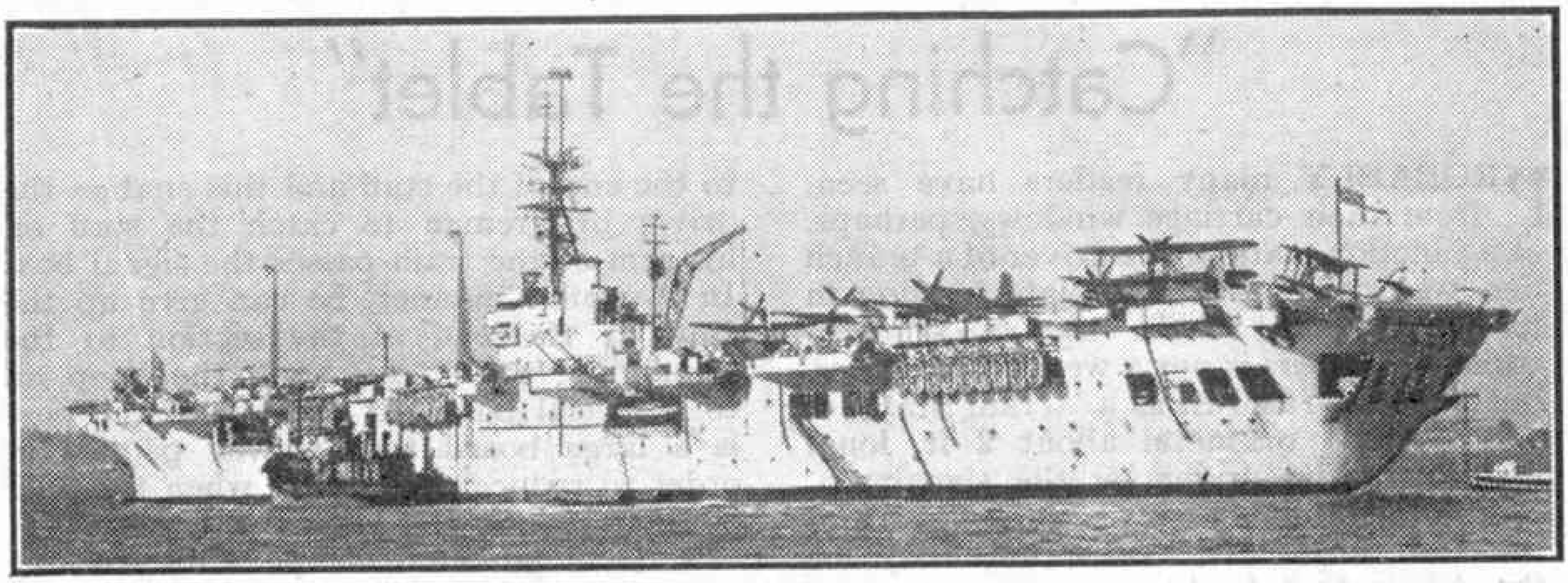
The authors have established a reputation for their careful and accurate surveys of the steamers of the Clyde, West Highland and other districts, and their latest book enhances this. It follows the same general arrangement as its predecessors, each of the many vessels dealt with being treated individually in an account that is compact and is the result of a complete and painstaking investigation. The illustrations are in keeping with the text. They consist of 100 excellent reproductions of photographs, showing a wide variety of coastal steamers of the past as well as those of to-day.

Each of the regions of British Railways is dealt with in turn, and a survey of the steamship services of the Irish railways follows. Then we pass to those of certain British and Continental companies closely associated with our railways. Interesting details are given in all cases, with many stories of special events or features of the services described, and the book ends with extensive fleet lists giving the names and chief dimensions of the vessels dealt with, makers' names, notes on machinery and other details. There is an excellent index.

"THE A.B.C. OF BRITISH RAILWAYS LOCOMOTIVES"
(Ian Allan Ltd. 8/6)

The four "*ABC*" books dealing with the locomotives of British Railways reviewed in these pages last January are now available as a combined volume. This gives lists, on the usual "*ABC*" lines, of all locomotives running on standard gauge public railways in this country. The combined volume idea is good, making ready reference easy, while the book is of handy pocket size and is strongly made.

Copies can be obtained through leading booksellers and Ian Allan agents at 8/6; or direct from the publishers at 33, Knollys Road, Streatham, London S.W.16 for 8/10 including postage.



H.M.S. "Vengeance."

Shipping News

Argentine Liner Built in Britain

Our lower illustration shows the launch of "*Presidente Peron*," the first of three sister vessels to be operated by an Argentine company. She was built by Vickers-Armstrongs Ltd. at Barrow-in-Furness, and launched in November last year. The three vessels planned are intended for a new fast service between London and Buenos Aires, and the "*Presidente Peron*" is expected to begin this service in May.

The new vessel is of 18,300 tons displacement, with an overall length of 529 ft. 6 in. and a moulded breadth of 71 ft. She is fitted with two sets of Parsons geared turbines driving twin screws, and the total power for continuous service at sea will be 13,500 s.h.p., with a maximum of 14,500 s.h.p. She will carry 74 first-class passengers.

Arctic Experiments

The illustration at the head of the page shows H.M.S. "*Vengeance*" at Portland before her trip to the Arctic to study the effects of very cold weather on men and weapons. In addition to their normal complement, the ships that took part in these trials carried scientists who made various experiments on the effects of cold. Tests also were made with aircraft in Arctic conditions.

A New Type of Life-Boat

A new type of life-boat has been introduced, the largest and most powerful in the R.N.L.I. fleet, and another vessel of the type, the "*Charles Henry Ashley*," was due to arrive at her station, Porthinllaen, in March. She is 46 ft. 9 in. long, weighs just over 20 tons, and is fitted with two 40 h.p. diesel engines. In addition to a cabin below deck she has one on deck, in which there are seats for 11 persons and a cooking stove. The superstructure of the boat, the deck cabin, a shelter for the mechanics, the mast and the ventilators are made of aluminium alloy instead of wood or mild steel, which saves a weight of more than a quarter of a ton. The exhausts of the engines are carried up through the mast.

The last of the sailing life-boats in the R.N.L.I. fleet has now ended her career. She was the "*William Cantrell Ashley*," and was built in 1907. For the last 41 years she has been stationed at New Quay, Cardiganshire, where her place has been taken by the "*St. Albans*," of the light Liverpool type. This new vessel is a gift from the people of St. Albans.

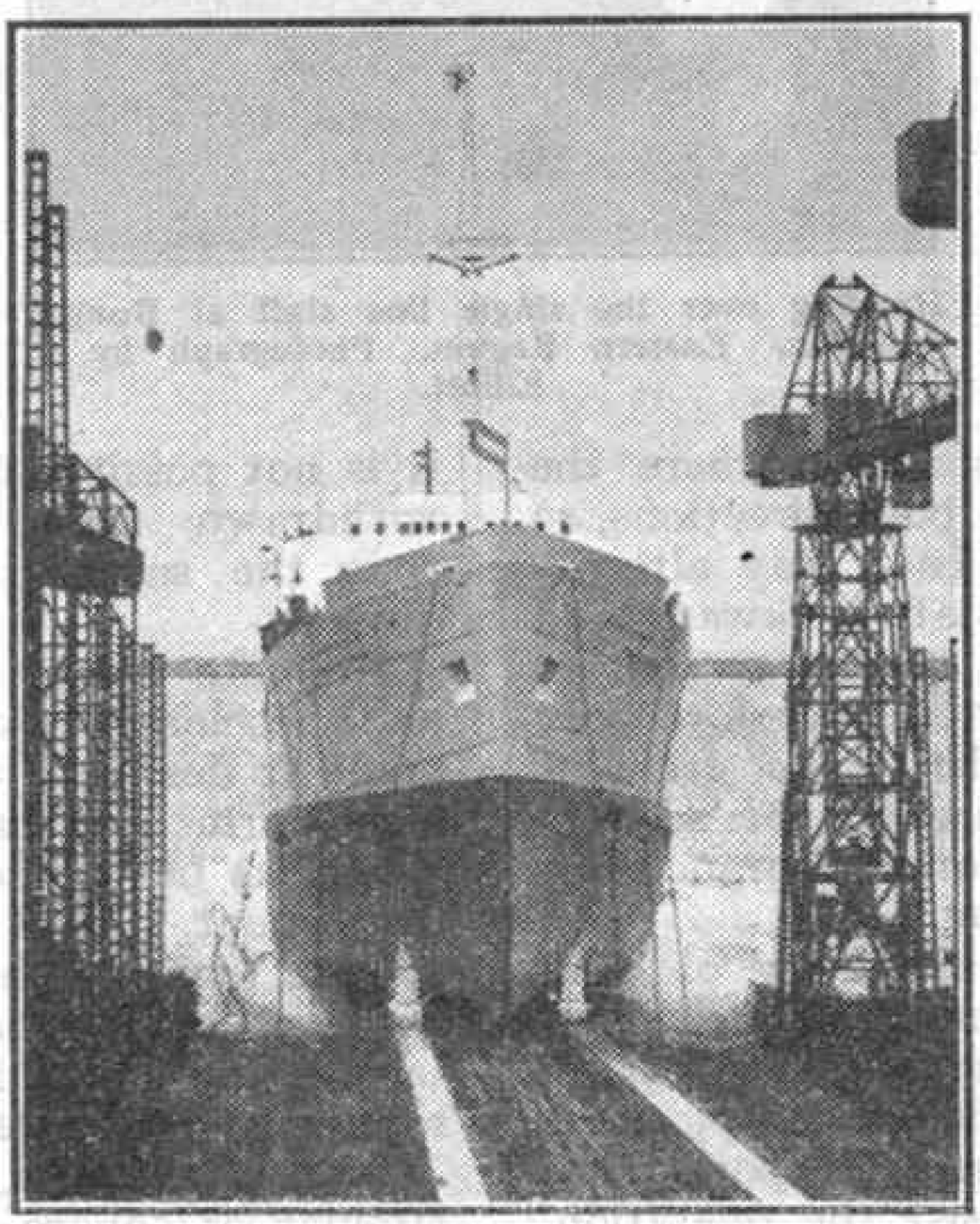
The New Cunard White Star Liner

The shipbuilding event of 1948 was the completion of the twin-screw passenger steamship "*Caronia*," built by John Brown and Co. Ltd., Clydebank, for the Cunard White Star Line. This handsome vessel is of 34,183 tons. She has a well raked stem, with plates rounded and fashioned in a graceful curve, and a cruiser stern. A large oval funnel is fitted, with a tripod mast.

The "*Caronia's*" funnel retains the familiar red and black so long associated with the Cunard line, but pale shades of green are used for the hull and superstructure above the red boot-topping at the water line. Her light colours will make her cooler in the tropics, where she will go when on cruises.

The twin propellers of the "*Caronia*" are driven by geared Parsons impulse reaction type turbines, steam for which at a pressure of 600 lb. per sq. in. and a temperature of 800 deg. F. is supplied by six Yarrow type boilers, with the most modern oil burning equipment.

The "*Caronia*" was launched in October 1947 by H.R.H. The Princess Elizabeth. She underwent her trials in December of last year and entered the North Atlantic service on 4th January. Later she began a series of cruises that will continue until May, when she will return to the North Atlantic service.



Launch of "Presidente Peron" at Barrow. This is the first of three vessels that will provide an express service between London and Buenos Aires.

"Catching the Tablet"

PROBABLY many readers have seen, from their carriage windows, perhaps, at a junction station, the driver of a branch line train mount his footplate holding in his hand what looks like a kind of truncheon. This is not a weapon, however, but is what is known as a "Train Staff," a bar of wood or metal about 2 ft. long, handed to the driver by the signalman. The branch line is a single track only, and the staff forms the visible authority for the driver to take his train over the single line section.

There is only one staff for the section, so that there can only be one train in it at once. Thus the dread possibility of head-on collision between two trains on the single line is removed, so long as the rules are observed. The fact that a driver is in possession of the staff does not entitle him to disregard ordinary signals, where these are installed, as they are sure to be where the branch joins the main line. He must obey them in the usual manner, even although he knows that no other train has authority to be in the section.

Handing over the single line staff at Bungay Junction. Eastern Region. Photograph by C. Elliott.

This method of working is quite satisfactory where the train service is equal in both directions, so that trains may work each way alternatively and carry the staff backward and forward from one end of the section to the other. The system is therefore only employed on lines where one train is working to and fro through the section, as occurs in the operation of a branch line by "one engine in steam."

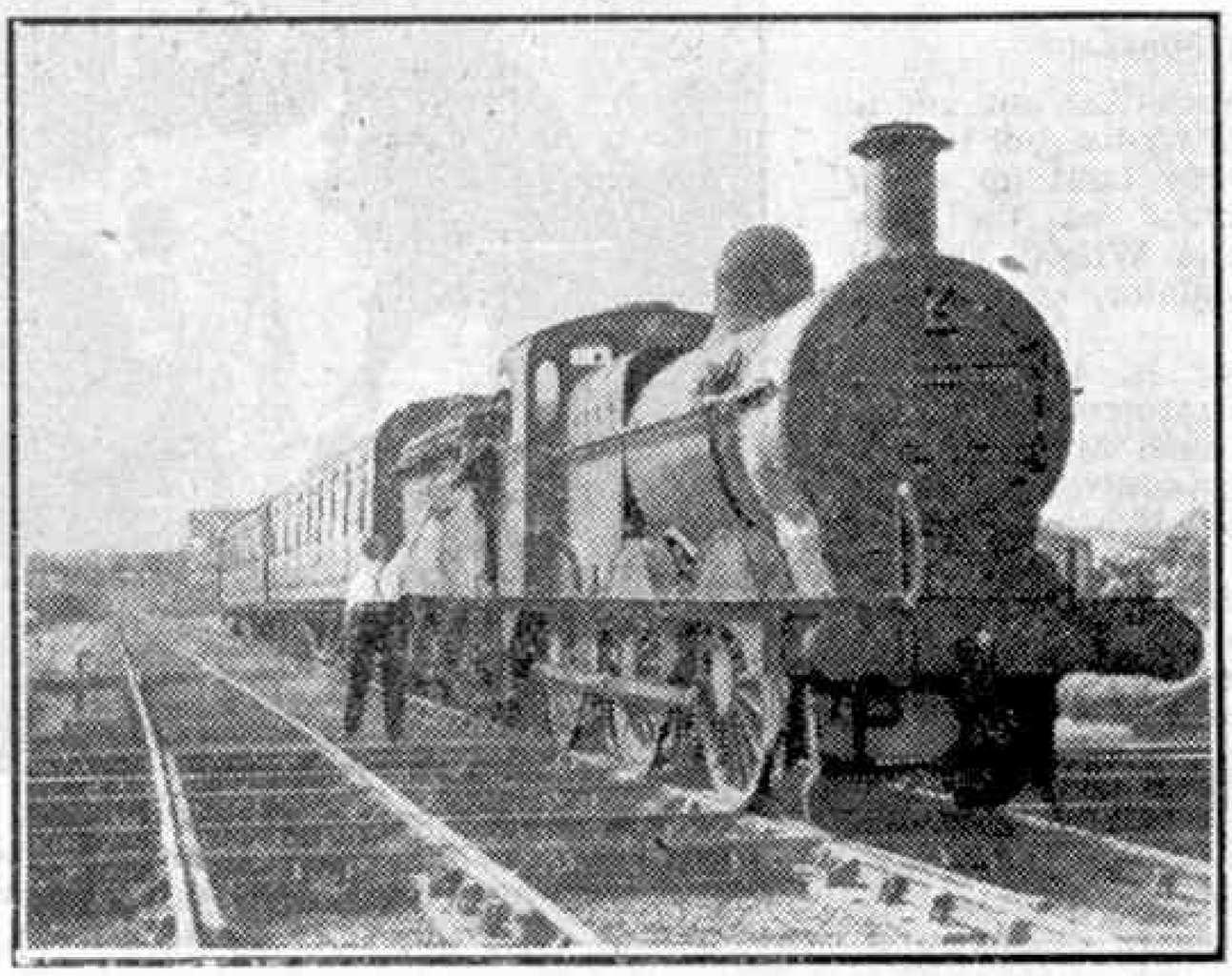
Quite often with this form of staff working, the staff is simply handed over, as is shown in the illustration on this page. This can take place at the station platform if convenient or at a suitable point near the signal box. To assist the operation, especially where it is carried out with the train in motion, a hoop may be attached to the end of the staff and this enables the driver or fireman to catch the staff on his arm as the train passes the signal box. In a similar manner, he can give up the staff at the end of the section to the signalman, or he can hook the hoop on to a special post. At the top of the post is a large board that is well padded in order to reduce the impact when the staff is deposited on the hook.

A development of simple staff working is the electric staff system. This involves special staff instruments, one at each end of the section, in which the staffs are kept. If a train is waiting to enter the section, the first signalman asks for permission from the second to withdraw a staff from the apparatus. If the second man knows that the line is clear, that is the preceding train has passed his box, he transmits to the first apparatus an electric current that permits a staff to be withdrawn and handed to the driver of the waiting train. When this train reaches the other end of the section the staff is given up, and until it is placed in the instrument at that end it is not possible for a second staff to be withdrawn from either instrument, so that the safety of the arrangement is obvious.

In more recent times the development and acceleration of train services have made it desirable to have a less cumbersome form of apparatus, and as a result there has been produced a miniature staff instrument, with 8 oz. staffs each less than 1 ft. in length. This is an ingenious piece of mechanism, and is complete with a tapper and bell for the despatch and receipt of bell code signals.

Instead of staffs, metal "tablets" either circular or square in form may be used. These fit into a slide in the signalbox instrument, and if one is withdrawn from

the instrument at either end of the section a further one cannot be issued until the first one is again placed in an instrument. The principle of the tablet system is the same as that of the staff system, but the construction of the instruments is necessarily different. The tablets are usually placed in a leather pouch with hoops attached for the purpose of exchanging them. The upper illustration on this page shows a tablet arranged in this way being picked up by the engineman.



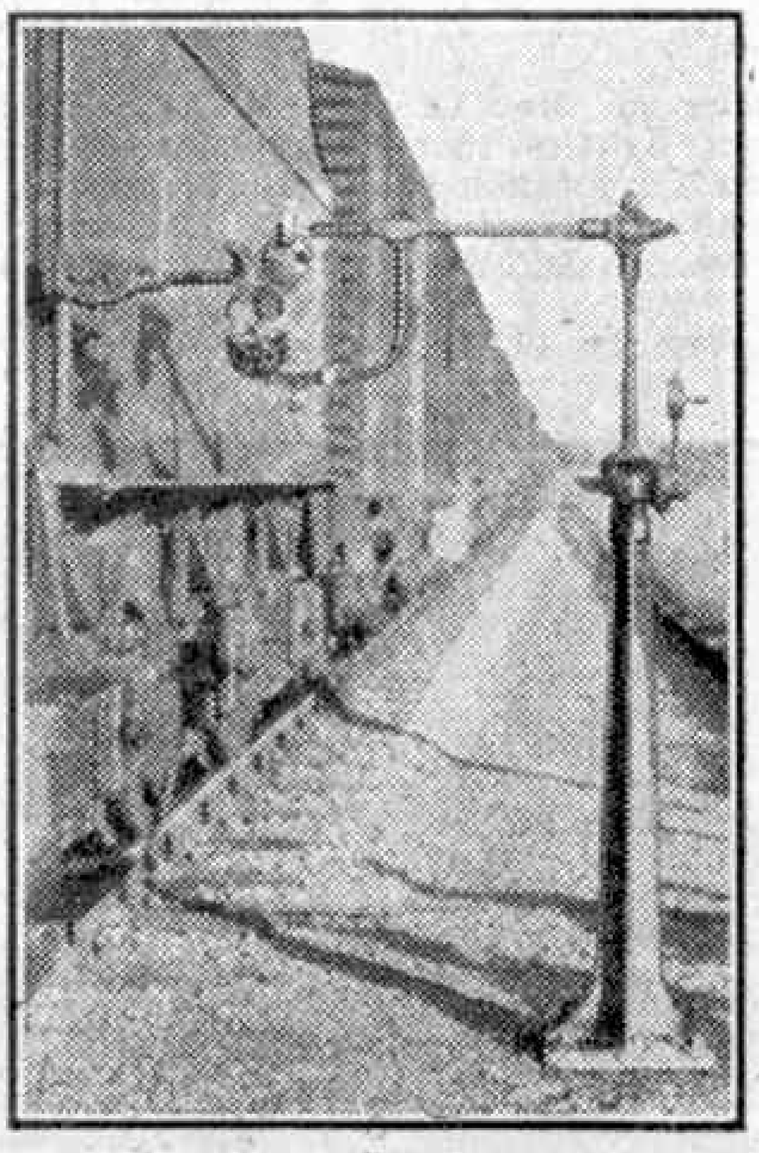
Catching the tablet by hand, the tablet being enclosed in a leather pouch with a hoop. Photographs on this page are by W. S. Garth.

On some lines "tokens" are used in a similar manner to staffs and tablets to give permission to enter a section. Special rotary locks are provided in the instruments that accommodate the token. These completely prevent the issue of more than one token at once.

On single lines where any system of hand exchange is in use, a reduction of speed is necessary at the moment of making the exchange, otherwise the men would run considerable risk of injury. With the smaller staffs automatic exchange is commonly practised, and is carried out at speeds as high as 50 or 60 m.p.h. Automatic exchange at speed has long been a feature of the Somerset and Dorset Joint line, the Highland Section of the former L.M.S. and the Great North of Scotland section of the L.N.E.R. and continues in use to-day.

The lower picture shows tablet exchange on the Somerset and Dorset line. The apparatus used there is that introduced in 1905 by Alfred Whitaker, for many years in charge of mechanical matters on that railway. The arm projecting from the side of the engine, when set for exchange, has at its outer end a pair of jaws fitted with triggers that prevent the steel hoop on the pouch from rebounding off the jaw after being caught. The rear end of the jaw is constructed to carry the tablet about to be given up, the pouch being held in a spring clip. The ground exchange column shown is a combined "deliverer and receiver" and has two arms, the upper one to receive the tablet and the lower one to carry the tablet to be picked up. For operating a section of single line there would be at the commencement of the section a "deliverer" at one side of the line, and a combined "deliverer and receiver" at each side of the line at intermediate crossing places; and a "receiver" at one side at the end of the sections.

The arms on the columns normally stand parallel to the running track, but when it is required to exchange tablets, they are swung out at right angles to the line into such a position that they are ready to engage with the corresponding apparatus fixed on the locomotives. The moment the tablets are exchanged, the arms automatically swing back clear of the line to their normal position.

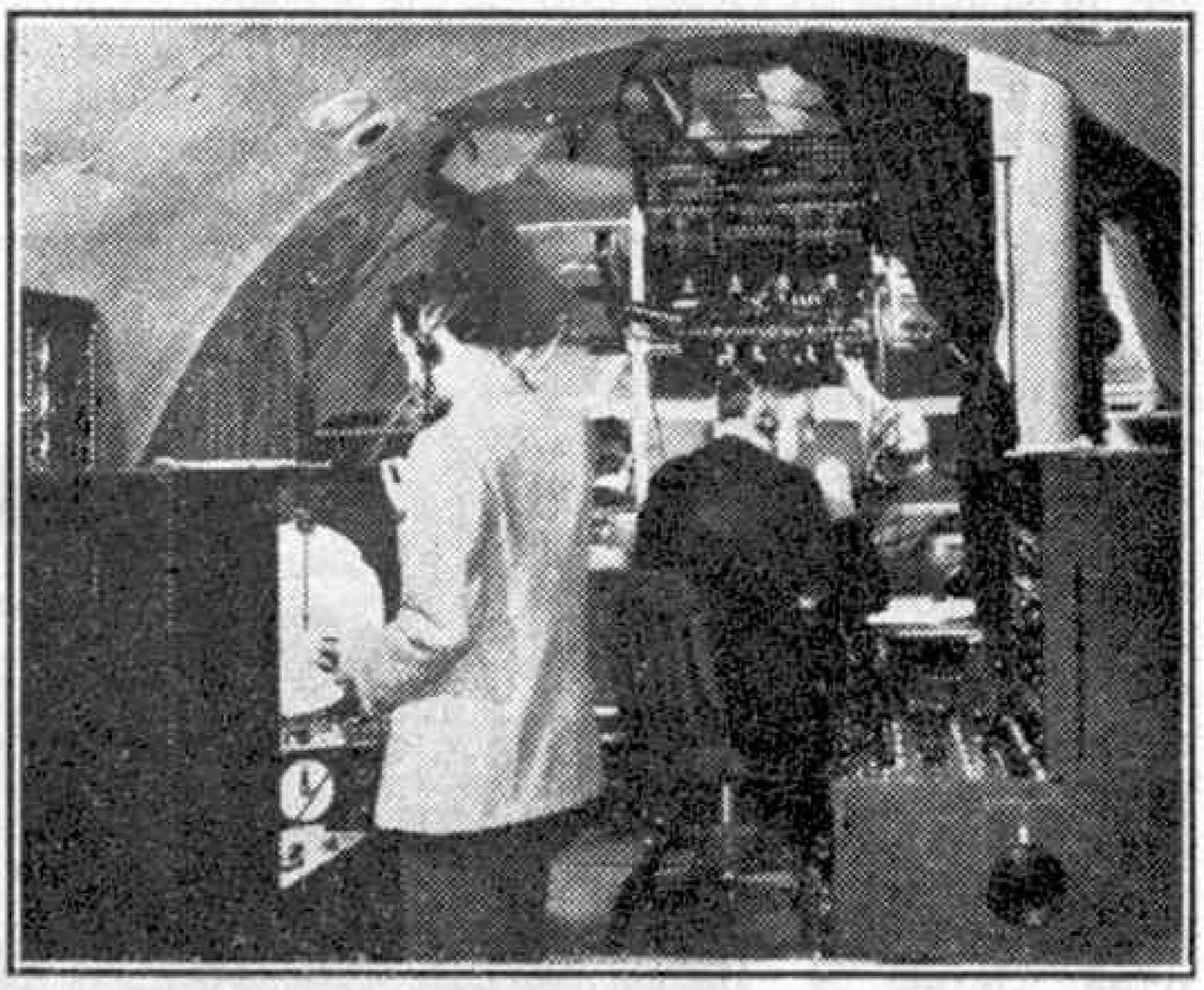


Mechanical exchange of tablets on the Somerset and Dorset line.

Manson's apparatus, introduced on the G.N.S.R., includes a fixed ground column with extending head. On the latter and on an extending arm fitted to the engine are mounted two sets of forked spring prongs of different strengths, so arranged that the "delivery" prongs always yield the tablet to the "receiving" ones.

Air News

By John W. R. Taylor



Instructor supervising a simulated flight in the Curtiss Wright Dehmel Electronic Flight Simulator, with a Pan American World Airways crew. Photograph courtesy Pan American World Airways.

Dehmel Flight Simulator

The Boeing "Stratocruiser" is not yet in service on the world's air routes, but several airline crews have already built up a fair number of "flying hours" on the type by means of the Curtiss Wright Dehmel Electronic Flight Simulator, shown on this page.

The Flight Simulator is, in effect, a complete dummy "Stratocruiser" flight deck. All components such as flying controls, instrument panels, control pedestals, switches, radio aids, seats, lighting, etc., are actual "Stratocruiser" parts. Every item of equipment is activated by an electronic computor that is able to duplicate the flight characteristics and even the "feel" on the flying controls under various conditions of flight. Thus crews can be taught exactly what it is like to fly a "Stratocruiser," without ever leaving the ground, and can even practice emergency action in perfect safety. They can be trained to a high degree of efficiency in two-thirds of the time, and much cheaper than by flying the real aircraft. Initial cost of a Dehmel Flight Simulator is high (£56,000), but it has been estimated that it will save £3,150 per crew in training costs over a 5-year period—a considerable saving for a large airline.

B.O.A.C. Service to Tokyo

First scheduled British civil air service between the United Kingdom and Tokyo is now being operated by B.O.A.C. with 22-seat Short "Plymouth" flying boats. The 10,000-mile flight from Southampton to the Japanese capital takes just over seven days, night stops being made at Augusta, Alexandria, Karachi, Calcutta, Bangkok, Hong Kong and Iwakuni. The service previously terminated at Iwakuni in the zone of the British Commonwealth Occupation Force, after which passengers to Tokyo were faced with the prospect of a 24-hr. train journey.

Two-Seat "Shooting Stars"

So urgent does the U.S.A.F. consider the need for squadrons of efficient all-weather jet fighters that it has awarded the Lockheed Aircraft Corporation a contract for 110 two-seat F-94 "Shooting Stars" to fill the gap until the new Northrop F-89s are delivered late in 1950.

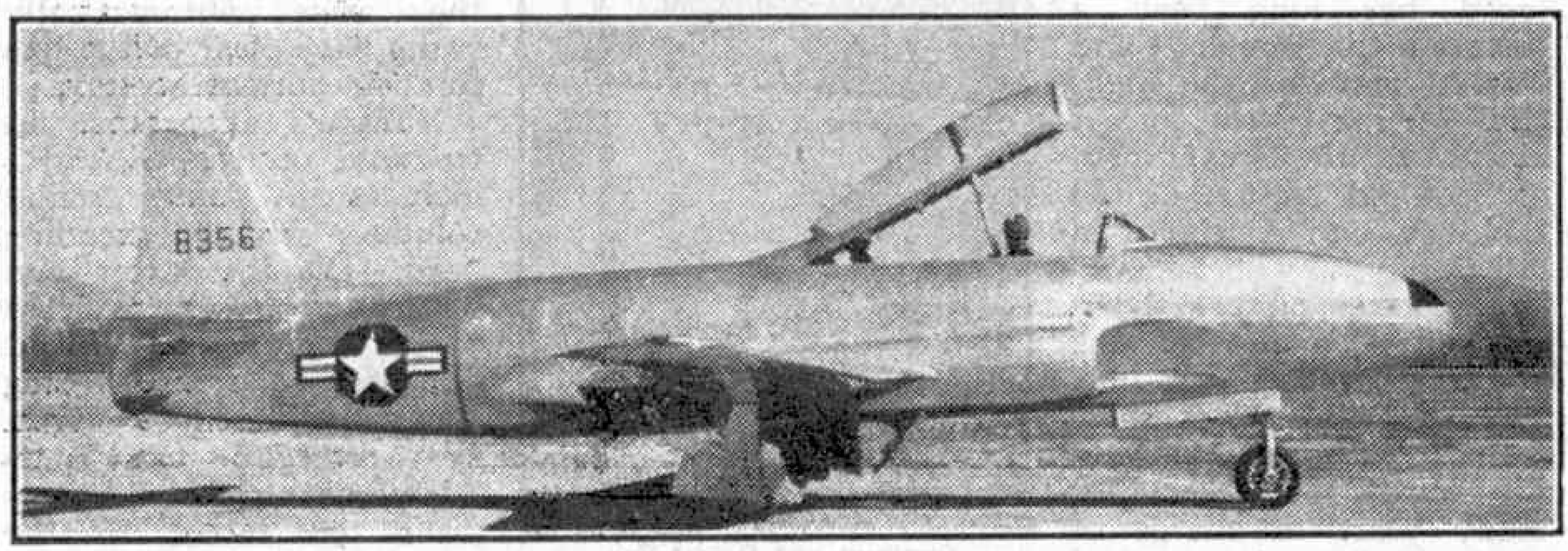
In general, the F-94 will be similar to the TF-80C "Shooting Star" jet trainer illustrated on this page. It will be powered by an Allison J-33 engine similar to that fitted in the P-80R which held the World Speed Record at one time, and should have a top speed of around 600 m.p.h. Its fuselage will be some 38 in. longer than that of a standard "Shooting Star," to house the second cockpit and extensive radar and radio equipment needed for night interceptor duties.

High Altitude Speed Course

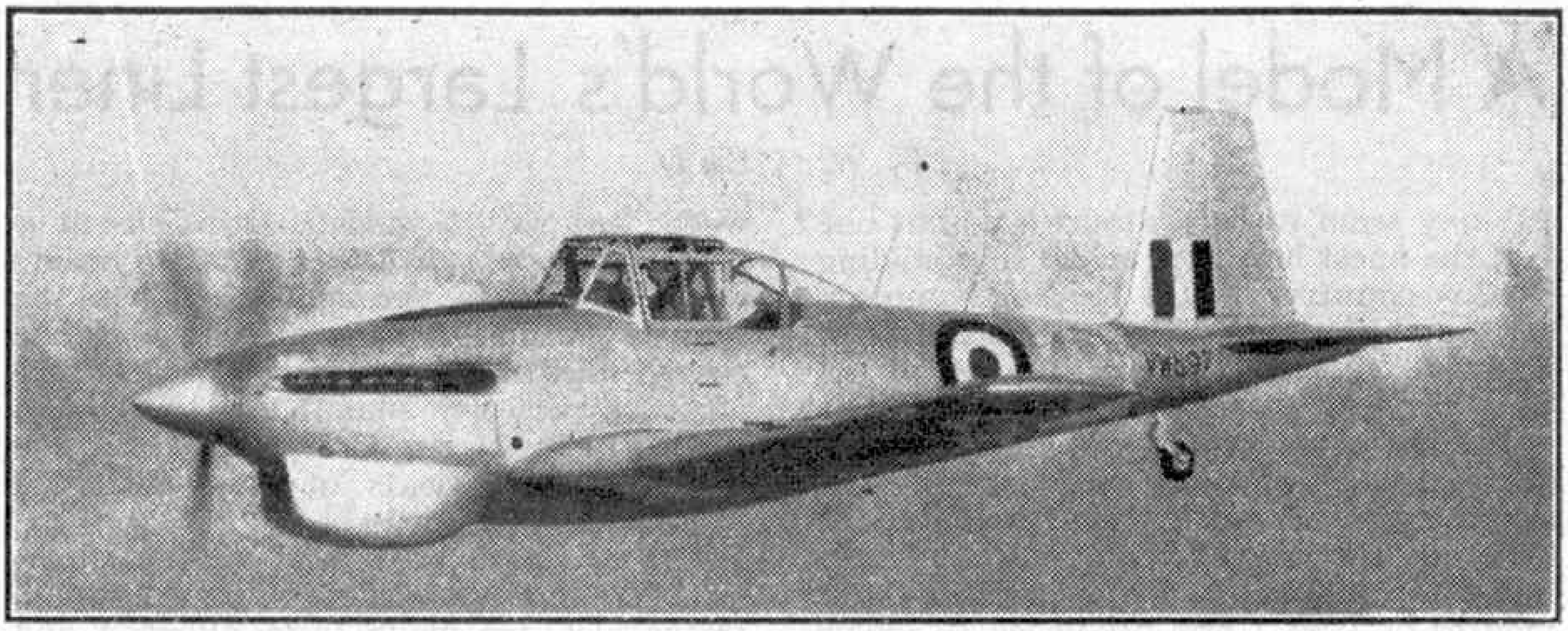
The official regulations governing attempts on the World Speed Record specify that speed runs must be made at a height not exceeding 75 metres (246 ft.). This was all very well in the days of "stick-and-string" biplanes, but the dangers of flying jet aircraft at such low altitudes, at speeds approaching that of sound, can be well imagined.

Now it is reported from America that the U.S.A.F. are planning a high-altitude speed course at Muroc Dry Lake, California, using a special radar timing system that they hope will be adopted officially by the Federation Aeronautique Internationale, the body governing all international flying records.

Radar units at each end of the course will direct beams vertically upwards. Penetration of these beams by an aircraft will automatically stop high-precision



Lockheed TF-80C "Shooting Star" two-seater jet trainer. Photograph by courtesy of U.S. Air Force, Wash., D.C.



The Boulton Paul "Balliol" 2 military training aircraft, described on this page.

clocks and so record the starting and finishing times. Additional equipment will ensure that the pilot does not dive his aircraft while on the speed run. The U.S.A.F. is satisfied that the new equipment will measure speed with a maximum error of less than 1 per cent., making it better than the low-altitude equipment now in use.

The "Balliol" 2 Trainer

A new British military trainer aircraft, the Boulton Paul "Balliol" 2, was recently dived at more than 450 m.p.h., a speed greater than that of many war-time fighters. The dive, which was comparatively shallow, started at 10,000 ft.; it was part of the trainer's preliminary trials, and proved that the aircraft retains its fine handling qualities even at extreme speeds.

The "Balliol" 2, illustrated above, is a direct development of the original Boulton Paul P.108, which made such a spectacular appearance in the 8th S.B.A.C. Flying Display at Radlett in September 1947. The P.108 had a Bristol "Mercury" air-cooled engine and was intended chiefly as a flight-test machine, to reveal any faults in the airframe before the prototype "Balliol" 1, powered by a "Mamba" propjet, was completed.

It was expected that the "Balliol" 1 would be put into production for the Royal Air Force as standard jet trainer equipment. But the immediate requirements of R.A.F. Flying Training Command are for a fast two-seat piston-engined trainer, and so the basic airframe has been adapted again to take a "Merlin" engine, the new version being designated "Balliol" 2. Boulton Paul have been awarded a development contract for a batch of "Balliol" 2s for test by R.A.F. Flying Schools in Great Britain and overseas, and delivery will begin soon.

B.O.A.C. Sell Flying Boat Fleet

British Overseas Airways Corporation have sold 12 of their Short "Hythe" class flying boats to Aquila Airways, of Loudon and Southampton, who will use them for air charter work. Some of these "Hythes" are still flying on B.O.A.C.'s U.K.-Australia route, but they are being replaced by "Constellations," and as they come off the service they will be handed over to Aquila Airways.

First used to keep open the Empire routes during the war, each of the "Hythe" class boats has, on an average, flown a million miles. In their original form, they were operated to an austerity standard of comfort, but at the end of the war they were re-equipped to peacetime standards and re-introduced on routes to Africa, India, and Australia, proving extremely popular.

Aquila Airways plan to strip most of the aircraft for freight work, and, in fact, operated three "Hythes" on the Berlin Air Lift between Hamburg and Havel Lake, Berlin, with great success until ice stopped flying boat operations in December last.

First Helicopter Loop

The first helicopter loop in history was accomplished recently by a Piasecki HJPH-1 "Rescuer" during a test flight near the Company's factory at Morton, Pennsylvania, U.S.A. The pilot was testing the ability of the helicopter to pull out of steep dives, and after two successful pull-outs he decided to see what would happen if he pulled the "stick" right back and applied full "up" pitch to the rotor blades at the same time.

He soon found out, for the "Rescuer" began to climb in a vertical position—a thing that no self-respecting helicopter ever does! He decided that the best way of recovery would be to continue on through a loop, which he did without any structural damage to the aircraft.

The twin-rotor 10-seat "Rescuer," in quantity production for the U.S. Navy, Marine Corps, and Coast Guard, has a 600 h.p. Pratt and Whitney engine.

A mass air rescue demonstration by a Piasecki transport helicopter. Photograph by courtesy of Piasecki Helicopter Corporation, U.S.A.

A Model of the World's Largest Liner

By W. M. Hardy

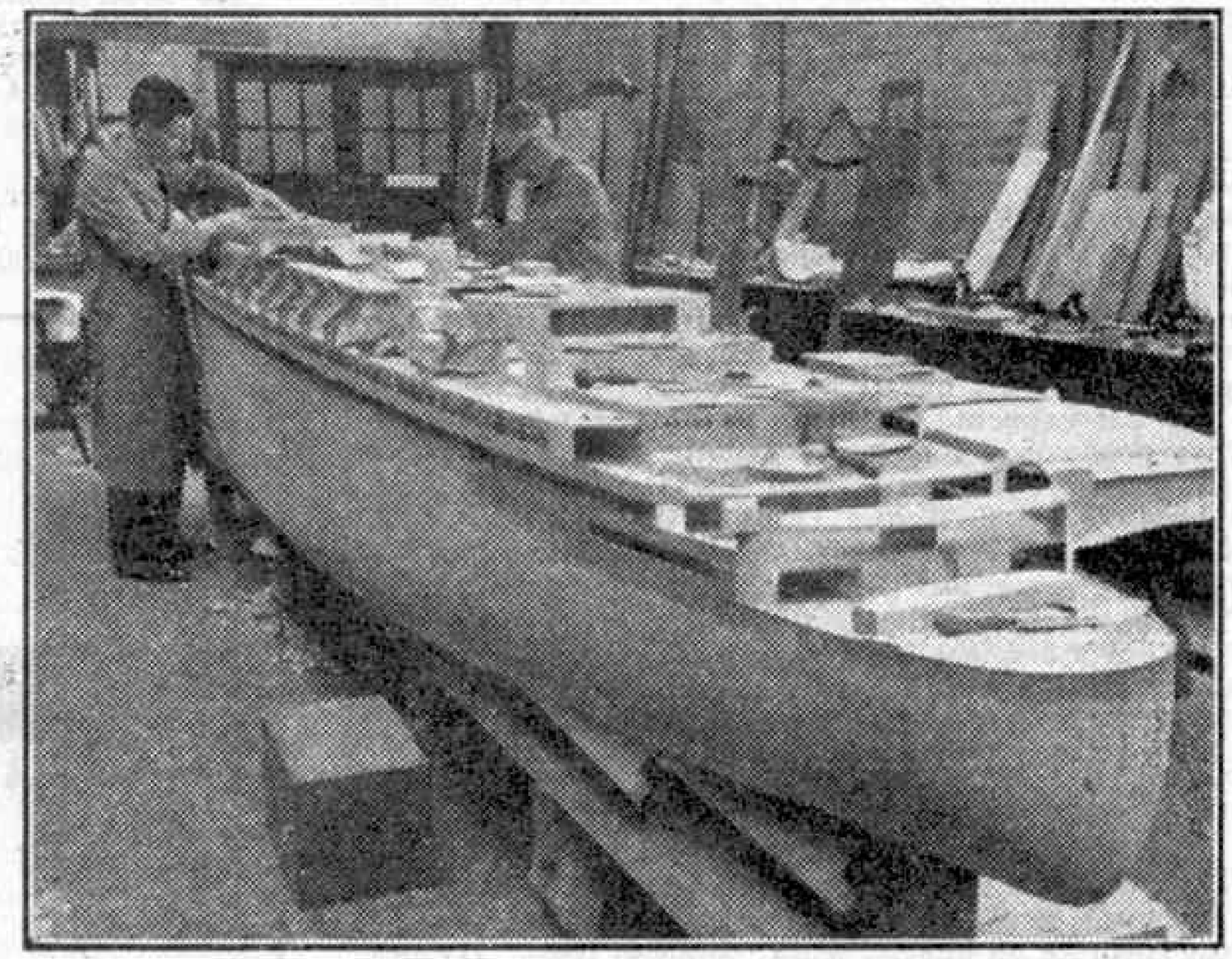
IT may seem rather paradoxical that one of the finest homes of model shipbuilding in this country should be Northampton, a town that claims to be in the centre of England and the furthest point of all from the sea! On reflection, however, our island is so small that nowhere is so very far from the sea, and everyone of us is interested in our worthy maritime heritage and no less in present-day Naval and Merchant shipping. During the later months of 1948 I was privileged to follow progress in the building of a huge scale model of the largest liner in the world, R.M.S. *"Queen Elizabeth,"* at the Northampton craft works of Bassett-Lowke Ltd.

This experience proved to be memorable in being a revelation of the skilled craftsmanship still to be found in our country in these days of mass production. Ship models, either for publicity or for exhibitions, cannot be turned out like ninepins; ships are essentially individual and this quality must be reflected in any ship model that claims to be an exact miniature reproduction. Thus every model is made singly with expert care over accuracy and detail, combined with due regard for the marine atmosphere. In most cases the original ship's drawings are used, as the cost of producing special drawings for the model would be disproportionately high. If the ship is already launched, then numerous photographs are also used by the modelmakers, and are especially helpful in large-scale models, where fine degrees of detail are required. A great number of photographs taken aboard the *"Queen Elizabeth"* were at the disposal of Bassett-Lowke's craftsmen during work on the model illustrated here, which is to a scale of $\frac{1}{4}$ in. to 1 ft., or 1/48th actual size.

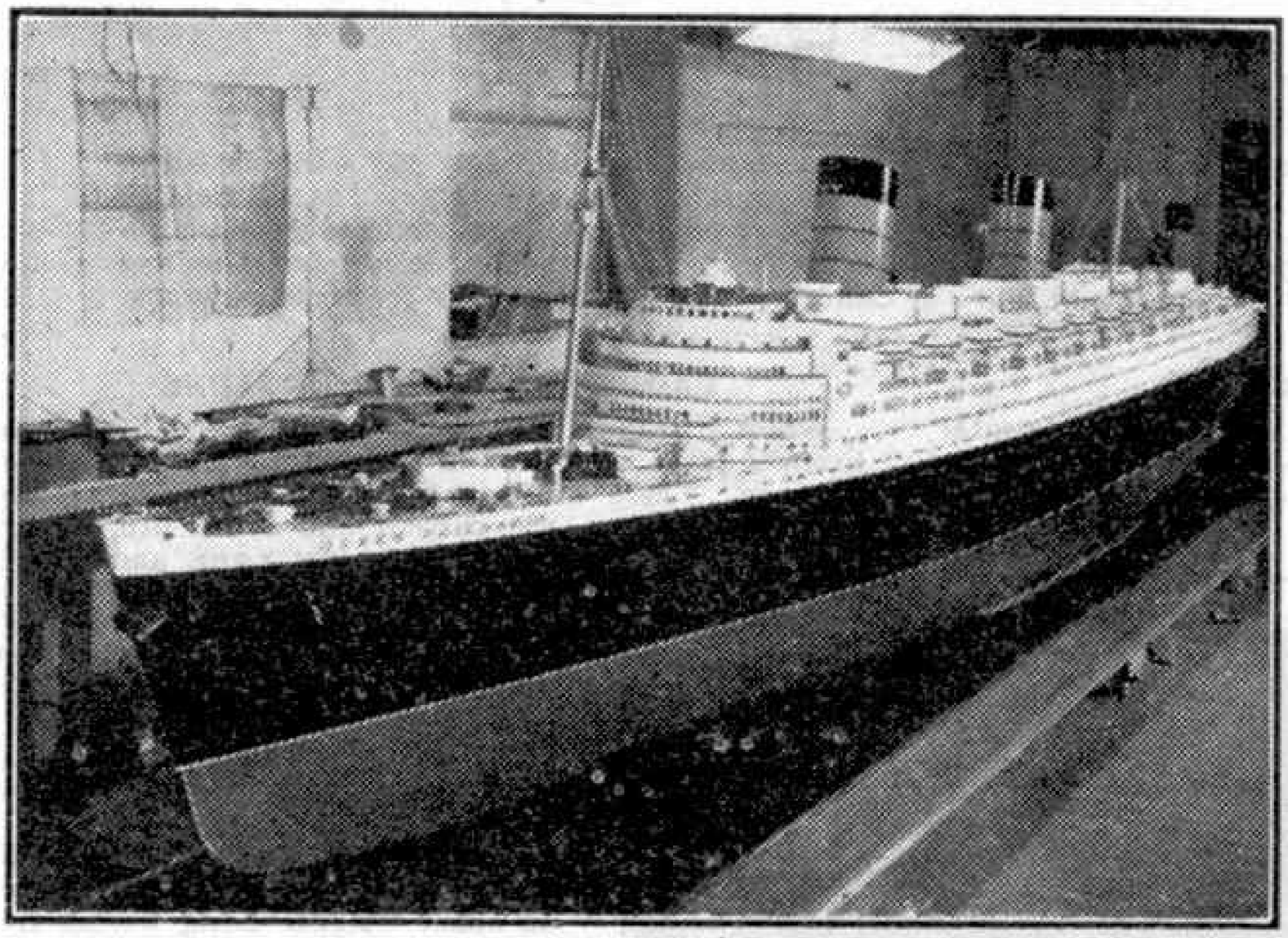
Some 22 planks, cut from a single log of African white mahogany, form the laminated hull of the model, firmly secured with glue and about 2,000 screws. Smaller hulls can be made from a single block of wood, but with a model of this size it is necessary to use planks in order to ensure a uniform grain throughout. When the hull is fashioned to represent the fine curved lines of the ship herself, the surface must be perfectly smooth and without a single blemish, in order to take the extremely thin coats of paint that are subsequently applied.

The ship's 26 boats and all the superstructure are modelled from plywood. Decks also are made from plywood and are lined by hand to give a realistic effect of planking. All the small fittings are metal, made by the craftsmen from sectional drawn brass rod or from sheet brass. Such fittings include the ship's name on bows and stern, propellers, anchors, rudder, masts, navigating instruments on the bridge and the numerous other items that complete the ship's gear. Most of the metal fittings are plated, oxidized or chemically treated according to the finish required, while a few of the larger ones are stove-enamelled in the correct colours. Two thousand scale model stanchions are on this model, every one drilled for the threading of the fine wire which represents the handrails.

The painting is a highly skilled job, for it must be remembered that as the model is 1/48th full size, a coat of paint 1/48th in.



At work on the model of the "Queen Elizabeth." The hull is complete and craftsmen begin to build up the superstructure on the liner's decks.



The finished model, conveying all the resplendent majesty of the proud ocean liner, awaits shipment to New York.

thick is equal to a 1 in. thickness of paint on the actual ship! Believe it or not, this model of the *"Queen Elizabeth"* had 20 coats of paint before the final application of varnish, each coat being rubbed down to a perfectly smooth surface before the next was applied. The hull markings of Plimsoll line, draft marks and the white riband, typical of all Cunarders, are handpainted.

After painting there follows the final assembly. In case you think this is a simple task of just putting so many parts in their right places, I would assure you that the successful assembly of a ship model is one of the most difficult jobs of all, and is entrusted only to skilled and experienced craftsmen, who have a general knowledge of ship design. The model must convey to onlookers something of the individual atmosphere of the ship herself, and it is up to the craftsmen to instil this quality into the model as they build it up, as well as to ensure that every detail is accurate and every piece of gear and equipment in its proper place.

By the time you read this the *"Queen Elizabeth"* model will have arrived in New York, its eventual destination, where it is to be displayed in the offices of the Cunard White Star Ltd. In the same office is a pre-war model of that other giant Cunarder, the *"Queen Mary,"* to the same scale, and which also originated, in 1935, from the Bassett-Lowke craftworks "in the centre of England."

What Keeps the Clouds Up?

EVERYONE who has watched the clouds floating along in the sky before a brisk breeze must have wondered at some time what keeps them up. The answer to this question is concerned with their formation. Actually they do fall, but they consist of drops of water that are too small to fall at an appreciable speed. The smaller the drop the lower its rate of fall, owing to the resistance of the air. For instance, a drop about a twelfth of an inch in diameter, which is the size of a heavy raindrop, will fall at the rate of nearly seven yards a second, while one that is only a thousandth of an inch in diameter will take 450 times as long to fall through the same distance.

This accounts for clouds staying apparently suspended in the air, but what happens to make them fall eventually in the form of rain? The full answer to this is not known, but it is believed that the formation of tiny particles of ice in the upper parts of a cloud is one cause. This part of a cloud is of course at a great height, where the temperature is low, the height for instance at which the wings of an aeroplane tend to become iced up. The vapour pressure around a drop of water is greater than that around a tiny particle of ice, and this causes the ice particles to grow at the expense of the water drops until they are big enough to fall quickly, melting into rain on the way.

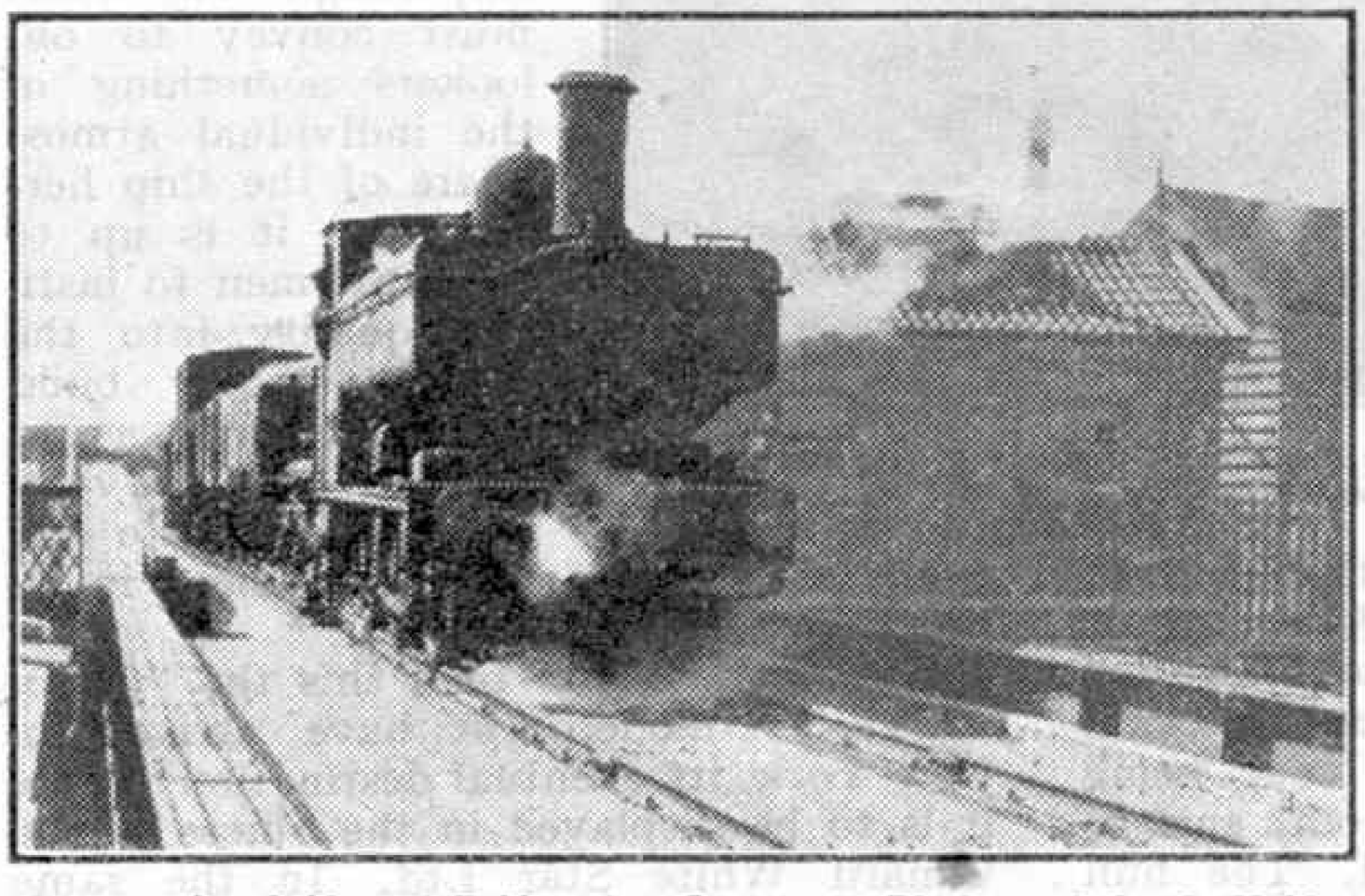
Rain has actually been caused by scattering dry ice, which is frozen carbon dioxide, on the tops of clouds from aeroplanes. Successful experiments on these lines have been made on several occasions in Australia. Sprinkling dry ice at 70 deg. below zero on chosen clouds caused water drops in them to freeze, and rain then fell. From 40 to 50 lb. of dry ice was found sufficient.

From Our Readers

This page is reserved for articles from our readers. Contributions not exceeding 500 words in length are invited on any subject of which the writer has special knowledge or experience. These should be written neatly on one side of the paper only, and should be accompanied if possible by original photographs for use as illustrations. Articles published will be paid for. Statements in articles submitted are accepted as being sent in good faith, but the Editor takes no responsibility for their accuracy.

A TELESCOPIC BRIDGE

There is an unusual type of bridge at Bridgwater on the Western Region of British Railways. It spans the River Parret and provides a connection between



A retracting bridge at Bridgwater, Somerset. Photograph by J. Hobbs, Exeter.

Bridgwater station, on the main Taunton-Bristol route, and the railway owned docks on the western side of the stream. The accompanying photograph shows a transfer trip of freight wagons passing over the bridge on its way to the main line.

The bridge has three spans, one on the western bank of the river that is immovable, a central one that retracts to the eastern bank, and an eastern one that moves to one side to make room for the central span. In the illustration the engine house is shown, with its short stack, and the space into which the third portion of the bridge is virtually side-tracked also is shown.

This peculiar type of bridge was necessary to give passage for ships to the quays on the south side. These are no longer used, and the bridge, still equipped with its railway signals and shipping navigation lights, remains permanently across the river. J. Hobbs (Exeter).

PEVENSEY CASTLE

Pevensey Castle has a wonderful history. The first structure was built by the Romans and added to by William the Conqueror after the Battle of Hastings in 1066. The outer wall, 12 ft. thick and 30 ft. high, is Roman and is much admired because of its preservation and size. It is one of the largest of castle walls, and encloses over nine acres of ground.

The inner wall of the Castle is shown in the accompanying illustration. It had a drawbridge, a keep, and a dungeon, and on one side there are three turrets. This part of the castle has a moat on three sides of it.

P. G. Nash (London S.E.12).

CARP FISHING ON THE SAONE

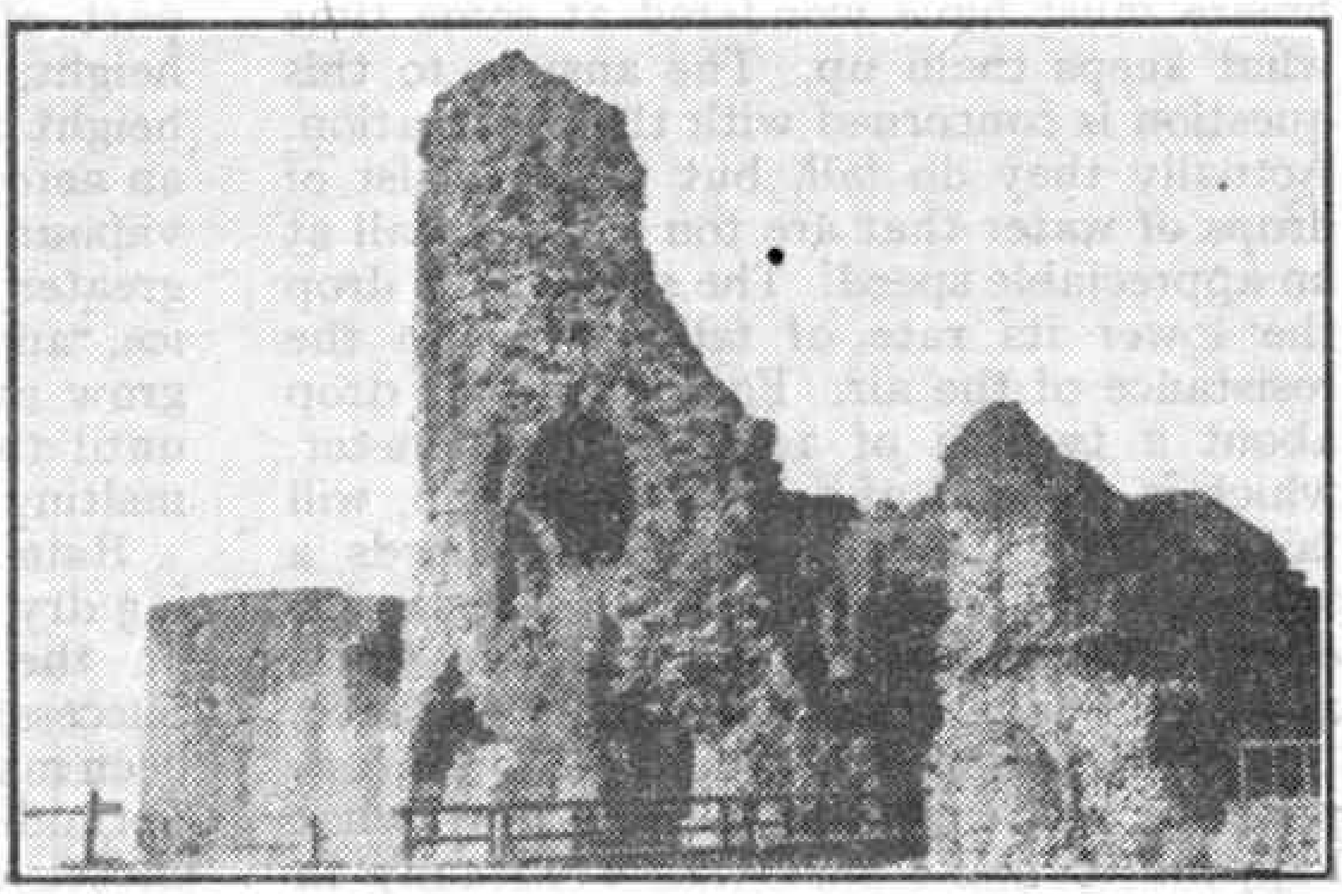
When I stayed in a little town on the Saone, in France, I was interested in the method used in fishing for carp. There was one particular spot where both the current and the depth, about 12 ft., were just right, and where carp had been fished for many years. Week after week the spot is continually baited, with clay soil mixed into a paste with boiled potatoes, boiled wheat and beans, and made into balls the size of a hen's egg. These are thrown in over the desired spot.

A fairly large-sized hook is used and about 10 in. above it is tied an ounce weight. Long worms are used, and worm and hook are pushed into a hole in one of the balls, which is closed up round them. The line is cast gently, and the rod is wedged under a seat and then the fisherman waits. The slightest touch on the hook makes the end of the rod vibrate, and at the right moment the fisherman jerks the line.

Now the work starts. To "land" a carp above 9 or 10 lb. there are two possible ways. If the fisherman has a reel he uses it in the ordinary way, but as most of them have none they do an odd thing. They just let the whole lot go. Having thrown rod and all into the water they row after it, and pick it out now and again to play the fish. It is remarkable to see the whole population out on the bridge and banks watching a chase. In some instances such a pursuit has been three quarters of a mile in length.

The Saone is in eastern France and runs southward to join the Rhone at Lyons. Carp up to 35 lb. in weight have been caught in the stream at the town where I stayed, but these are exceptions. Fish weighing 10 to 20 lb. are quite often caught, however.

B. Langford (Oundle).



The ruins of Pevensey Castle. Photograph by P. G. Nash London S.E.12.

Club and Branch News

WITH THE SECRETARY

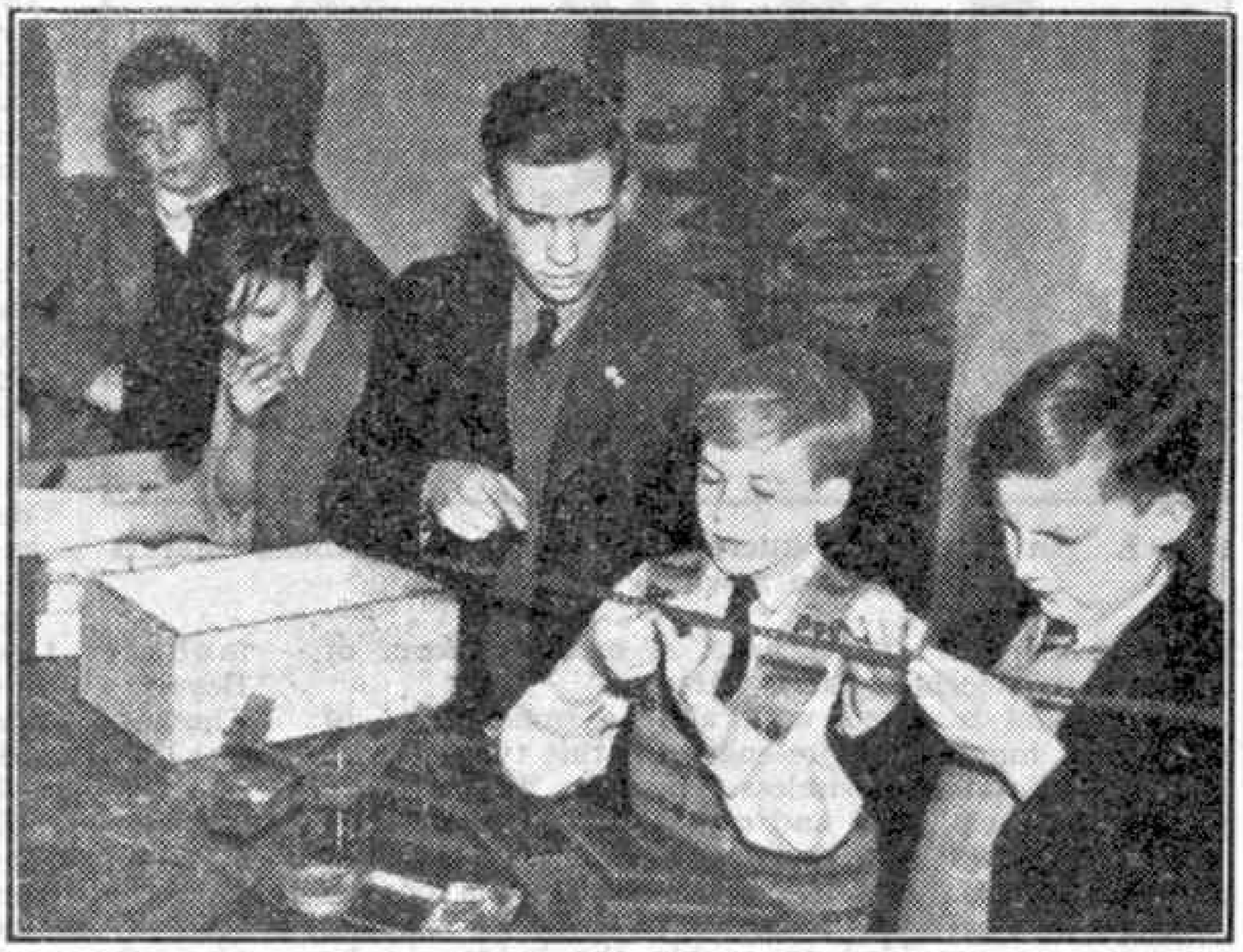
CLUB MONEY

In most Clubs the amount of money required is very small indeed, but whether this is large or not, it is important that the financial side of a Club's work should be well organized and kept thoroughly in hand. In many Clubs the Leader himself is Treasurer, but a better plan is to appoint a senior member to this post. He collects subscriptions and keeps records, so that he can let the Leader and officials know at any time exactly how the Club stands, in order that they may keep expenditure within bounds. At the end of each session a balance sheet should be posted in the Club room, so that members can see what is being done with the common funds of the Club, and a copy of this balance sheet should be sent to Headquarters.

Club funds are used for paying the necessary expenses of the Club room, such as lighting and heating, and equipment with tables, shelves and cupboards. Beyond that, money may be required for Club stocks of Meccano Parts and any other materials needed for the hobbies included in the programme. If subscriptions do not bring in sufficient for these purposes, other ways of raising funds should be tried.

FUNDS FOR OUTINGS

At this time of the year members are looking ahead to summer excursions, some of which will involve a little expense. It is as well to begin saving the necessary money immediately. Members should be invited to make small weekly payments to the Treasurer for the Outings Fund, in which of course each member's contributions will be used for paying his share of the expenses for the various trips arranged. If such a scheme is started straight away it will be found that, even with payments of only a few coppers a week, a surprisingly useful sum of money can be accumulated by the holiday season. The Outings Fund of course should be kept entirely separate from general Club funds.



Members of the Caer Urfa (South Shields) M.C. during a meeting in the Club Room. On the left is Colin Mather, Treasurer, and third from the left is Geoffrey Burrows, Secretary. This Club was affiliated in October 1945. Leader, Mr. A. Fyall. Its proceedings are noteworthy for excellent model-building, and realistic operations are carried out on the Hornby Railway of the associated Branch of the H.R.C., No. 484.

CLUB NOTES

HORNSEA M.C.—Membership at present is restricted to boys of 12 years of age and over, and all sections follow an intensive programme, which includes Hornby Train operation. Nature Talks are popular, and Film Shows and Talks illustrated by Lantern Slides also are given. Club roll: 47. *Secretary:* R. Lancaster, Carlton House, Carlton Avenue, Hornsea.

MILDMAY ADVENTURERS (LONDON N.1) M.C.—This Club is the successor of the Holy Trinity (Barnsbury) M.C., and is open to both boys and girls. A splendid Exhibition has been held. The models displayed included the Tower Bridge and a Revolving Crane, and prizes were presented by Mr. Stuart Wilson, founder of the Holy Trinity M.C. in 1918. Mr. Wilson has given "The Founders Cup," to be awarded annually to the member rendering the best service to the Club. *Secretary:* Miss D. Medlycott, 79, Ronalds Road, Highbury, London N.5

NEWCASTLE ROYAL GRAMMAR SCHOOL M.C.—This enterprising Club has been formed under the Leadership of Mr. G. L. Beech. Of recent meetings two comprised model-building contests; entries in one of these were exhibited at the School Speech Day. Discussions on the further programmes have been arranged. Club roll: 11. *Secretary:* F. J. Curtis, 6, Hartside Gardens, Jesmond, Newcastle 2.

CUDDINGTON CROFT M.C.—Preparations are being made for an Exhibition, at which each member is expected to show two models. A Hornby Railway Layout is to be demonstrated by the member who owns it, and it will be provided with suitable scenery, including Meccano models. A Dinky Toys Layout, with suitable accessories, also will be on view. Club roll: 12. *Secretary:* R. V. J. Chadder, St. Davids, 16, Sandy Lane, Cheam, Surrey.

BRANCH NEWS

STROUD—Track Nights have been held regularly, at one of which a Hornby-Dublo track was operated. The local station also has been visited for locomotive observations. Members are interested in Treasure Hunts and Quiz Programmes, always attractive features of the recreation of Clubs and Branches. A Branch Magazine has been started. *Secretary:* D. Hargest, 6, Folly Lane, Stroud, Glos.

NEW ROAD MODEL RAILWAY (SOUTH CHINGFORD)—Branch Headquarters are at New Road Schools, New Road, South Chingford, E.4. Steady progress continues to be made. The Hornby Layout is being extended and made more efficient in working. A terminal station to be called "New Road Central" has been commenced; it will have four tracks and two platforms. Re-wiring is in progress on the electrical layout. *Chairman:* Mr. G. C. Flowers, 21, Boxted Close, Buckhurst Hill, Essex

Among the Model-Builders

By "Spanner"

G. Taylor, Slough, won First Prize in a recent "M.M." Model-building Competition.

A FINE MODEL FIRE-ENGINE

One of the illustrations on this page shows a fine model fire-engine built by W. A. Nixon, Liverpool. It is 2 ft. 7 in. in length overall, and is driven by a 6-volt Electric Motor mounted at the front of the chassis. The whole of the rear portion of the body is constructed in the form of a compact storage locker, and access to it is obtained by a door placed under the rear part of the escape. A modified form of Ackermann steering gear is fitted.

The model is fitted with all the main items of equipment found on a fire-engine of this type. These include a searchlight, wireless apparatus, bell, pressure gauges, and head, side and rear lights.

The escape when fully extended reaches to a height of nearly 50 in., and will stand in position on the carriage at angles from 70 to 85 degrees. Special supports are provided to enable the ladder to be used at angles of less than 70 degrees.

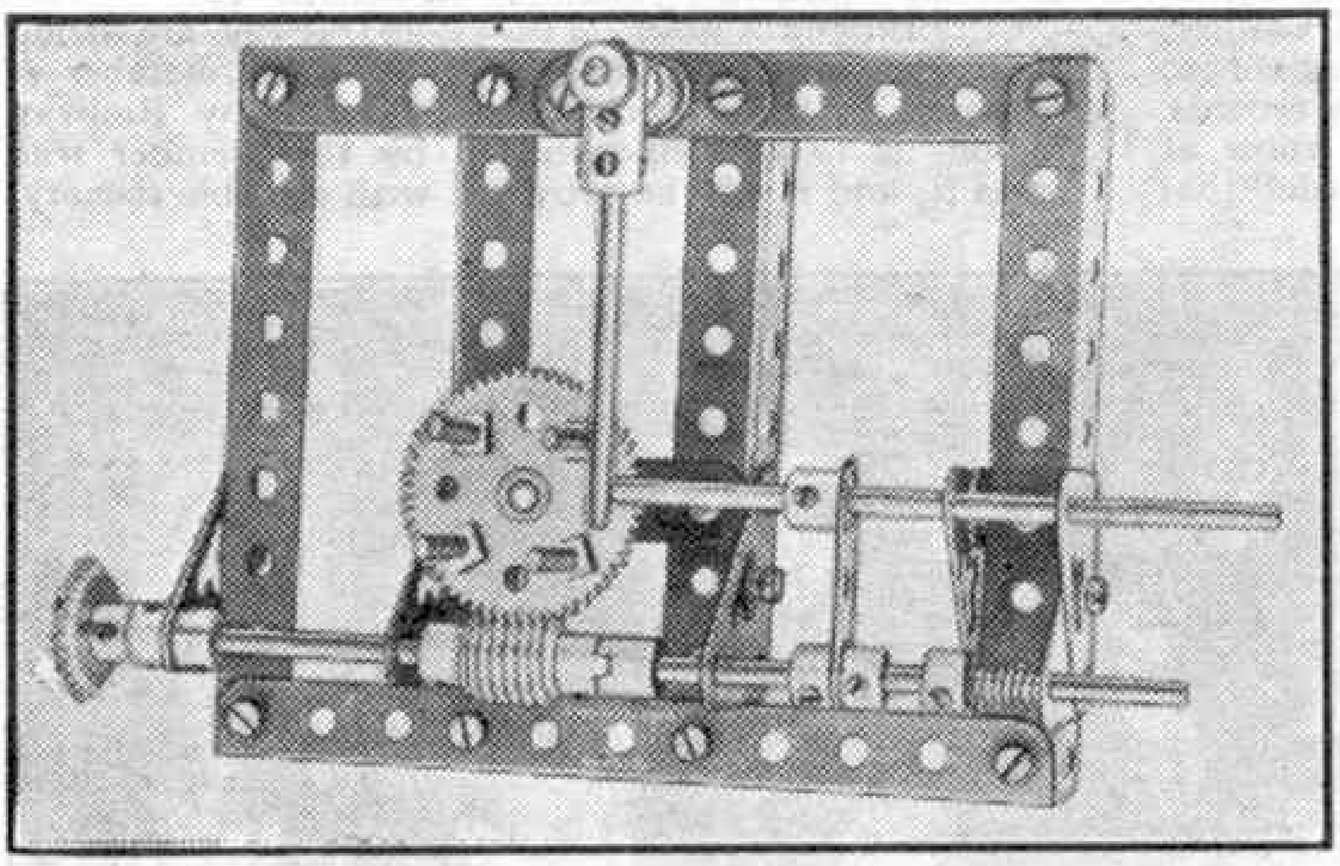


Fig. 1. An interesting intermittent motion mechanism that is simple to assemble and operate.

AN INTERMITTENT MOTION MECHANISM

By means of the mechanism shown in Fig. 1, intermittent motion can be imparted to a rotating Rod, of almost any duration and in a variety of sequences. A 57-teeth Gear, fitted with four ½" Bolts is mounted on a vertical Rod and driven by a Worm that is in constant engagement with the Gear. The Worm is fixed on a Rod that is rotated through Bevel Gears from another Rod running at right angles to it. The end of the Rod protruding from the Worm carries one half of a Dog Clutch, the other portion being fixed to the inner end of a sliding Rod. A Compression Spring on this Rod maintains contact between the two sections of the Dog Clutch when the drive is being transmitted. As the Rod, driven by the Bevel Gears, rotates, however, the Bolts in the 57-teeth Gear come into engagement with a tappet rod. The movement from this is transmitted through a sliding Rod and Crank to the Rod carrying the Compression Spring, and in this way the members of the Dog Clutch are drawn apart.

The duration and sequence of the drive to the output Rod can be varied easily by altering the number and position of the ½" Bolts in the 57-teeth Gear.

A NOVEL REVERSING GEAR

N. C. Ta'Bois, Woodford Green, sends the following suggestion for a simple reversing gear. It is illustrated in Figs 2 and 3. Fig. 2 shows the reverse drive and Fig. 3 the straight through drive position. The Bevel Gear 1 is mounted on a short Rod 3 and normally is held in engagement with the other two Bevel Gears as in Fig. 3 by a Compression Spring 2. A Collar 6 limits the depth that the teeth can engage. A 2½" small radius Curved Strip pivoted on a 1½" Bolt bears against a Collar 4 and carries at its other end a Fishplate. A Rod 8 has a Collar and a Threaded Pin 9 fixed at its end, the Threaded Pin riding against the Fishplate and Curved Strip. The other end of the Rod 8 is connected to Rod 5 by a short Rod, a Handrail Coupling, a small Fork Piece and a Collar as shown. The Rods 5 and 8 are free to slide laterally. As they are moved to the right the two Bevels acting as a dog clutch disengage, and the Threaded Pin 9 slides along the Fishplate. When the two Bevels have separated almost sufficiently to accommodate the Bevel 1 the Threaded Pin has reached the Curved Strip, and further movement of the Rod 8 allows the Curved Strip to rotate slightly anti-clockwise and the Bevel 1 to engage the two other Gears, under the action of the Compression Spring, thus providing the reverse drive. In the position shown in Fig. 3

A fine model fire-engine and escape built by W. A. Nixon, Liverpool.

the Bevel 1 is well clear of the other Bevels.

It was found in practice that the Bevel 1 tends to jump out of engagement when transmitting a heavy drive in the reverse. This can be prevented by mounting a further Collar and Threaded Pin on the Rod 8 in a similar manner to the Threaded Pin 9, but placed approximately at the point 7. When the Rod 8 is moved to the extreme right this additional Threaded Pin will touch the Rod 3, but will be on the opposite side of the Collar 4 to the Curved Strip, and will effectively prevent lateral movement of the Rod 2.

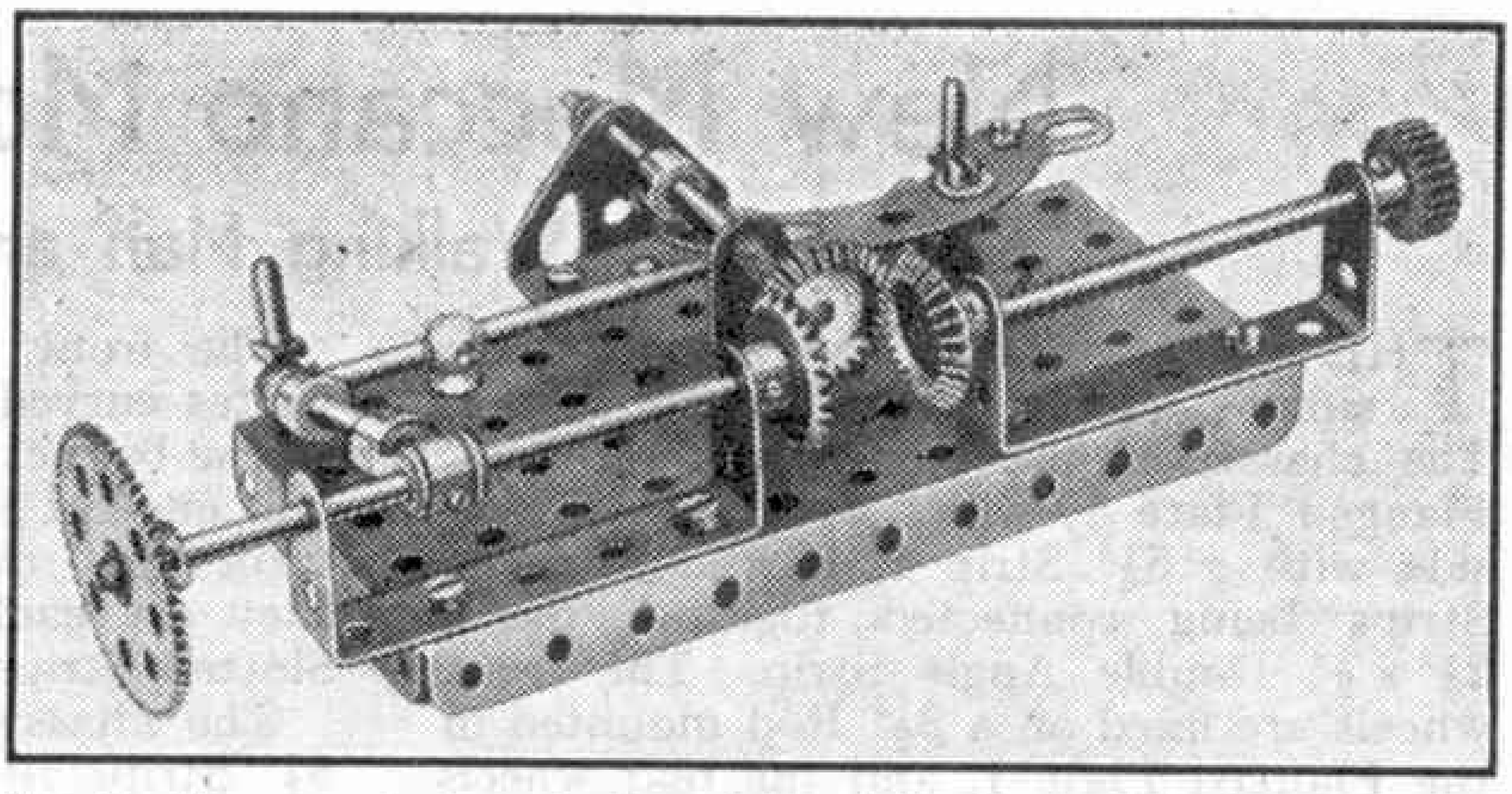


Fig. 2. The reversing mechanism designed by N. C. Ta'Bois, which is described in these pages. The illustration shows the gears in the reverse drive position.

HOW TO USE MECCANO PARTS

Pinions in Gear-Box Design

The Meccano ½" and ¾" Pinions are seldom used together, as their centres are not a standard distance apart when mounted on Rods, in holes in Plates or Strips, etc. and for this reason it is generally found necessary to build up a complicated framework in order to accommodate them. It is, however, occasionally possible to use them together to good effect, as shown in Fig. 4. In this example several ½" and ¾" Pinions are used together to form a very compact three-speed and reverse gear-box, the overall measurements of which are only 3" × 1" × 1". This probably is the smallest gear-box of its type that can be built from standard Meccano parts.

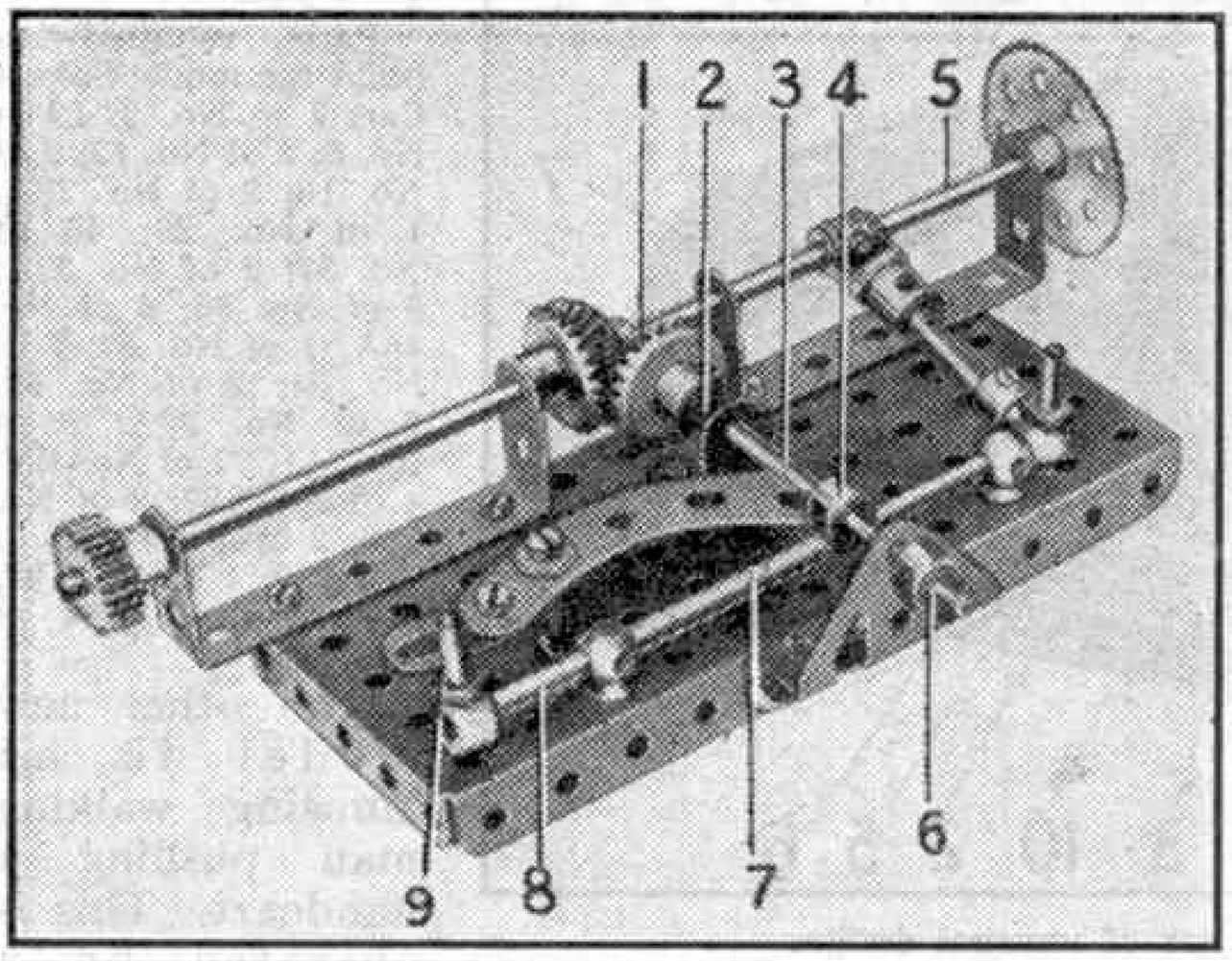


Fig. 3. Ta'Bois reversing mechanism in the straight through driving position.

The end of the Rod 1 is inserted in the bore of the ½" Pinion 4 that is carried on a separate Rod 2 from which the final drive is taken. Rod 2 carries also a ¾" Pinion and Collar. The sliding lay-shaft is a 4½" Rod on which are mounted a ½" Pinion 5, a ¾" Pinion 6, and a ½" Pinion 7. A ½" Pinion 8 is carried on a ¾" Bolt screwed into the transverse bore of a Threaded Boss and locked by means of a Grub Screw inserted in the opposite end of the bore. The Threaded Boss is rigidly attached to the gear-box frame by a ½" Bolt 9, but is spaced by a Collar and two Washers.

The movement of the sliding shaft is controlled by a ½" Bolt 10, the head of which fits between the bosses of the Pinions 6 and 7. The Bolt is fixed in a Collar on the end of a 3" Rod forming the gear change lever, and pivoted to a 1" Triangular Plate by a further Collar. The Collar is fixed in place on the Rod by its Grub Screw, and carries also a bolt whose shank passes through one of the holes in the Triangular Plate.

In the illustration, first forward speed is in engagement, the drive passing through the ½" Pinion on the driving shaft 1 to the ¾" Pinion 6 on the layshaft. The ½" Pinion 7 engages the ¾" Pinion on the driven shaft, so that there are two stages of reduction gearing between driving and driven Rods. By sliding the layshaft to the right the Pinion 7 disengages, but Pinion 6 remains in engagement with its ½" Pinion and at the same time meshes with Pinion 4. This gives straight through drive. Further movement of the sliding Rod brings into engagement Pinions 3 and 5, and 6 and 4, in this case providing two step-up stages for top gear. Reverse drive is obtained when the Rod is slid over to the extreme left, and the drive then goes through Pinions 3 and 8, which are in constant mesh, to Pinion 6, Pinion 7 engaging the ¾" Pinion.

The construction of gear-boxes is a very interesting and instructive part of the Meccano hobby, and considerable ingenuity is required to assemble a workable unit in the smallest possible space. We should like to hear from model-builders who have constructed small mechanisms of this kind and to receive details and illustrations of their work. Any really good examples submitted will be illustrated in future issues of the "*M.M.*"

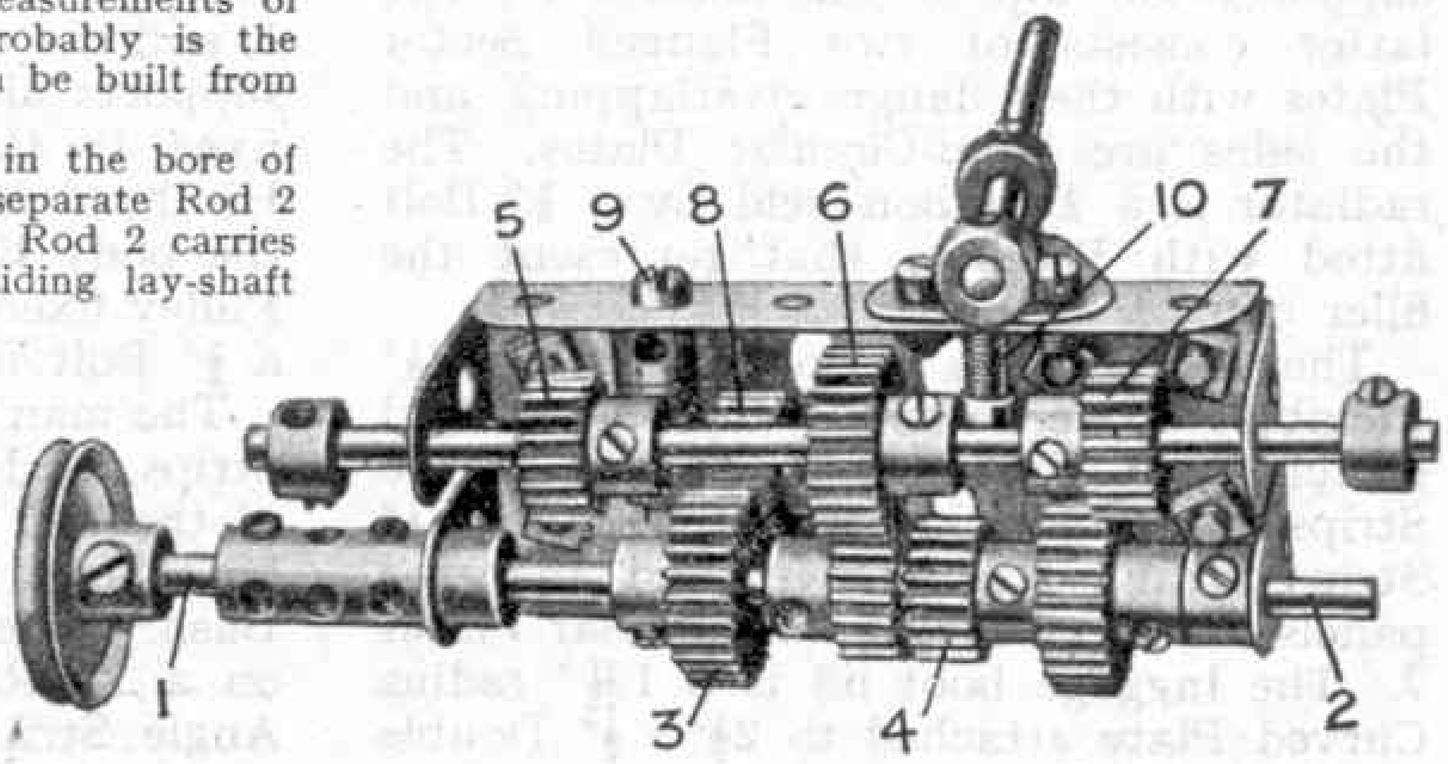


Fig. 4. A compact gear-box built up from Meccano Pinions.

New Meccano Models

Saloon Car—Walking Man and Cart

THE first of our two new models is the simple saloon car shown in Fig. 1. The chassis of the model is a $5\frac{1}{2}'' \times 2\frac{1}{2}''$ Flanged Plate 1, which is fitted at each side with a $5\frac{1}{2}''$ Strip 2, the ends of the Strips being connected together by a $2\frac{1}{2}'' \times \frac{1}{2}''$ Double Angle Strip. The front wheels are fixed on a $3\frac{1}{2}''$ Rod mounted in the Flanged Plate 1, and the rear wheels are attached to a similar Rod mounted in the Strips 2.

Each side of the car body is formed by a $2\frac{1}{2}'' \times 1\frac{1}{2}''$ and a $2\frac{1}{2}'' \times 2\frac{1}{2}''$ Flexible Plate.

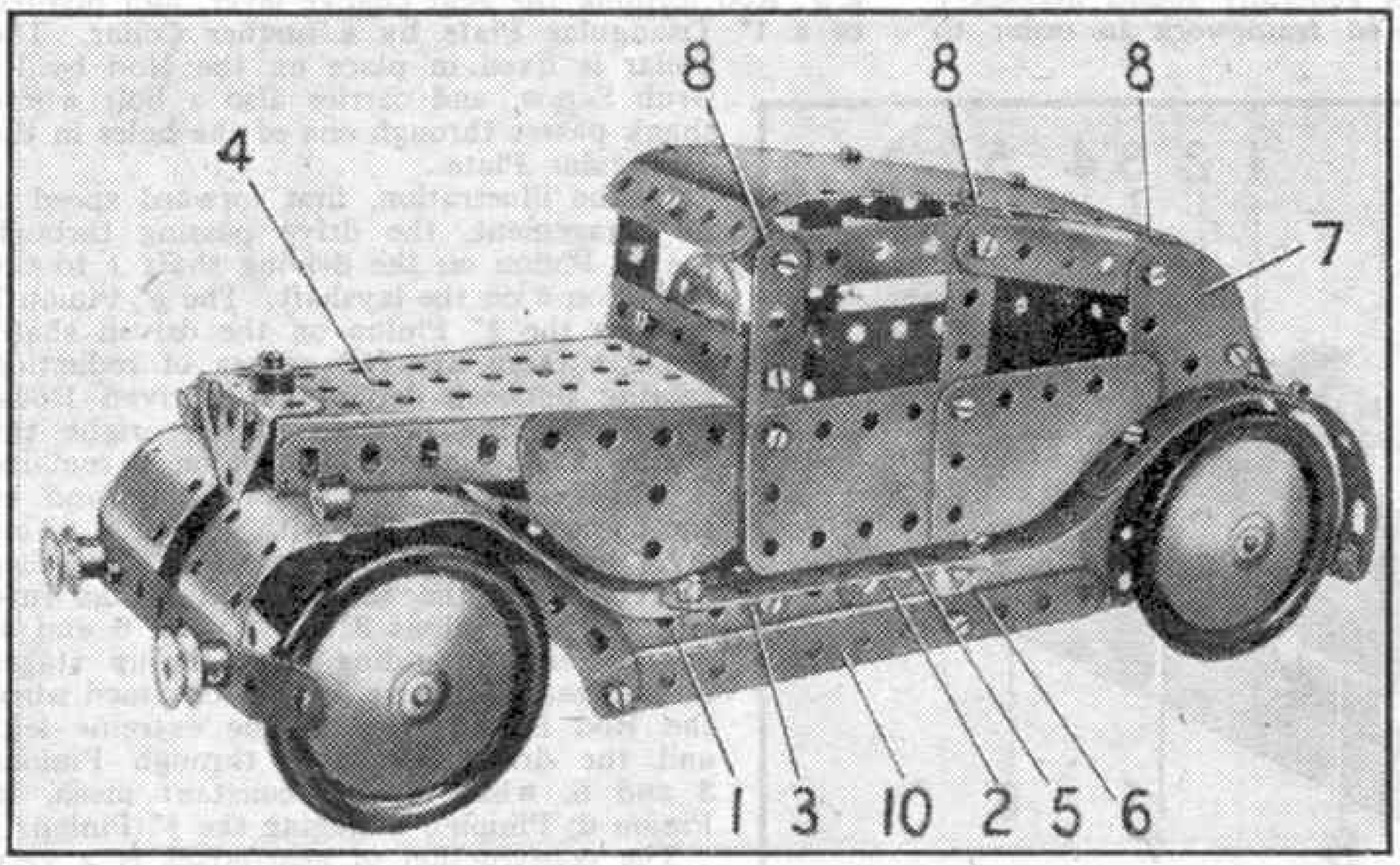


Fig. 1. A simple model saloon car of unusual design.

The $2\frac{1}{2}'' \times 2\frac{1}{2}''$ Plate is fixed to the Strip 2, and the $2\frac{1}{2}'' \times 1\frac{1}{2}''$ Plate to a compound strip 3, which is formed by two $2\frac{1}{2}''$ Strips overlapped three holes. The Strip 3 is bolted to the Flanged Plate 1, and supports the top of the bonnet 4. The latter consists of two Flanged Sector Plates with their flanges overlapping, and the sides are Semi-Circular Plates. The radiator is a Trunnion held by a $\frac{3}{8}''$ Bolt fitted with Washers that represent the filler cap.

The roof of the saloon is a $5\frac{1}{2}'' \times 2\frac{1}{2}''$ Flexible Plate curved to shape and attached to the $2\frac{1}{2}'' \times \frac{1}{2}''$ Double Angle Strips 8. The window frames are $2\frac{1}{2}''$ Strips arranged as shown, and the rear panels are formed by Semi-Circular Plates 7. The luggage boot lid is a $1\frac{11}{16}''$ radius Curved Plate attached to $2\frac{1}{2}'' \times \frac{1}{2}''$ Double Angle Strips 9.

The front wings are $5\frac{1}{2}'' \times 1\frac{1}{2}''$ Flexible Plates curved over the wheels and bolted to the bonnet and to the $5\frac{1}{2}''$ Strips 5. The rear ends of Strips 5 are curved upward to form part of the rear mudguards, and they are each extended by two Formed Slotted Strips.

The chassis is extended downward by $5\frac{1}{2}''$ Strips 10 fitted at their forward ends with small radius Curved Strips. The Strips are bolted to the $2\frac{1}{2}'' \times 2\frac{1}{2}''$ Flexible Plates of the sides. The front bumper is a $5\frac{1}{2}''$ Strip bolted to the wings, and the headlamps are $\frac{1}{2}''$ Pulleys fixed on $\frac{3}{8}''$ Bolts.

Parts required to build the model Saloon Car: 7 to No. 2; 13 of No. 5; 2 of No. 12; 2 of No. 16; 2 of No. 23A; 1 of No. 29; 48 of No. 37; 2 of No. 37A; 5 of No. 38; 6 of No. 48A; 1 of No. 52; 2 of No. 54; 2 of No. 59; 2 of No. 90A; 6 of No. 111C; 1 of No. 126; 4 of No. 187; 2 of No. 188; 2 of No. 189; 3 of No. 190; 1 of No. 192; 4 of No. 214; 4 of No. 215.

The other new model is an amusing walking man pushing a handcart. This is operated by a *Magic* Motor, and when set in motion the man walks with a very funny kicking movement that is most amusing to watch. The model can be built from Outfit No. 1.

The man's body is made by bolting together two $2\frac{1}{2}'' \times \frac{1}{2}''$ Double Angle Strips 1, and the upper bolt used for this purpose supports also a Trunnion 2. A $2\frac{1}{2}''$ Strip fixed to the Trunnion fills in the back. His head is a Flat Trunnion attached to the body by an Angle Bracket, and a 1" Pulley fixed to a second Angle Bracket by a $\frac{3}{8}''$ Bolt forms his hat.

The man's arms are small radius Curved Strips, and the legs are $2\frac{1}{2}''$ Strips. One of the $2\frac{1}{2}''$ Strips is bolted tightly to the body, and the other is lock-nutted to a Bush Wheel 3. The Bush Wheel is fixed on a 2" Rod 4 mounted in the Double Angle Strips 1. The feet are Fishplates, and a 1" Pulley 5 fitted with a Rubber

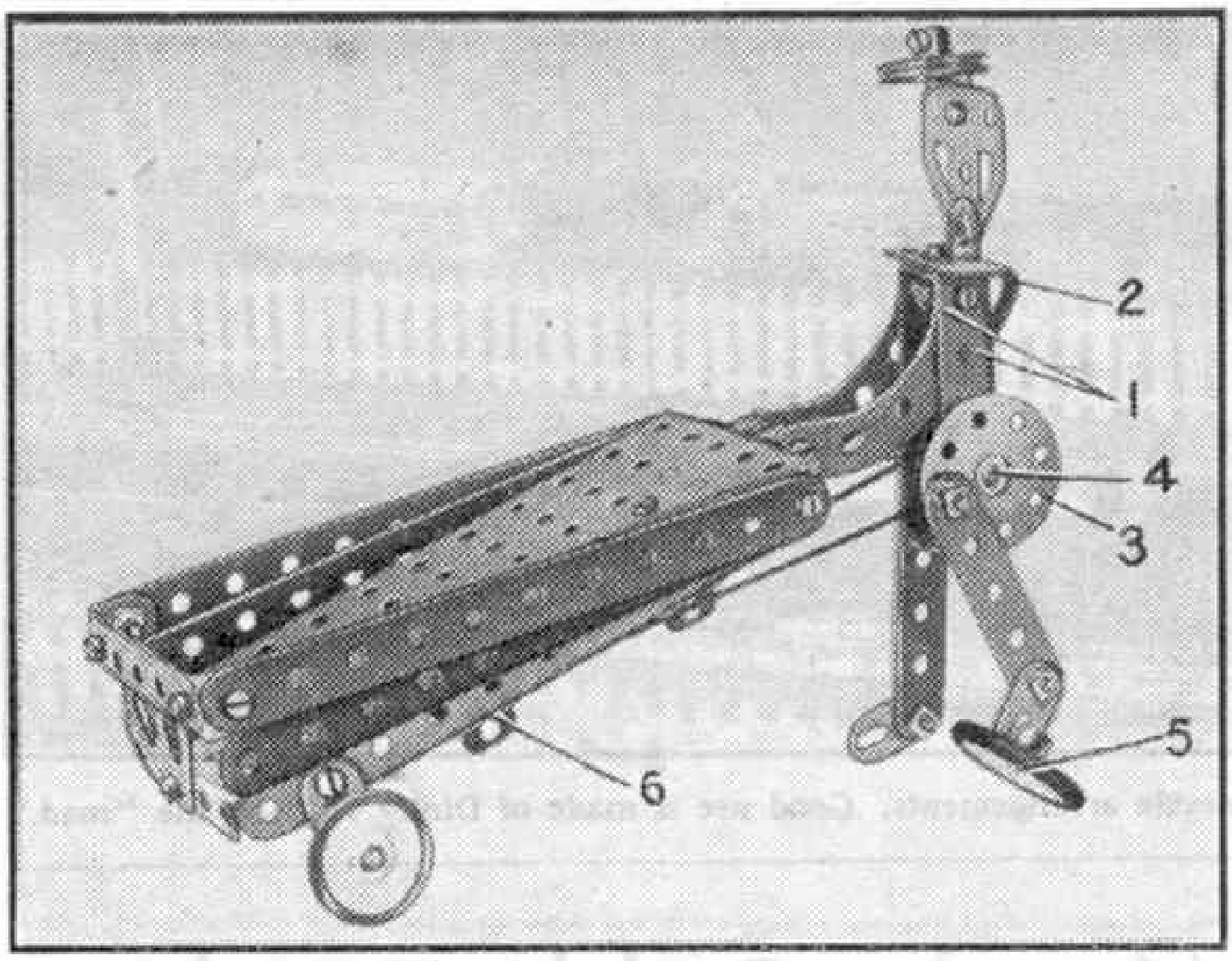


Fig. 2. An amusing walking man and handcart which can be built from Outfit No. 1.

Ring is fixed to one of the Fishplates at a slight angle.

The cart is formed by a $5\frac{1}{2}'' \times 2\frac{1}{2}''$ Flanged Plate fitted at each side with two $5\frac{1}{2}''$ Strips arranged as shown. The upper Strips are connected by a $2\frac{1}{2}''$ Strip and Angle Brackets, and the $2\frac{1}{2}''$ Strip is bolted to a Flat Trunnion attached to the Flanged Plate. The wheels are fixed on a $3\frac{1}{2}''$ Rod mounted in Fishplates. The man's arms are attached to the cart by Angle Brackets.

A *Magic* Motor 6 is bolted to the underside of the Flanged Plate, and is connected by a Driving Band to a $\frac{1}{2}''$ Pulley fixed on Rod 4 between the Double Angle Strips 1. When the Bush Wheel 3 is turned by the Motor the leg attached to it moves and pushes the cart along. The Rubber Ring on Pulley 5 enables it to grip the ground, and its position should be adjusted until the most satisfactory angle for operating the model is found.

Model-builders will find it interesting to design other models using a walking figure of the type described here.

Parts required to build the model Walking Man and Cart: 4 of No. 2; 4 of No. 5; 4 of No. 10; 6 of No. 12; 1 of No. 16; 1 of No. 17; 4 of No. 22; 1 of No. 23A; 1 of No. 24; 1 of No. 35; 3 of No. 37A; 23 of No. 37; 1 of No. 38; 2 of No. 48A; 1 of No. 52; 2 of No. 90A; 2 of No. 111C; 1 of No. 126; 2 of No. 126A; 1 of No. 155; 1 *Magic* Motor.

A COMPETITION REMINDER

Prizes for Outfit No. 4 Models

Readers are reminded that there is still time to submit entries for the special "Outfit" Model-Building Competition announced in last month's *"M.M."* In this contest prizes are offered for the best and most original models built entirely from the parts included in a No. 4 Meccano Outfit. There are no other restrictions, and it is not necessary to use all the parts contained in the Outfit.

When the model is completed a photograph or a sketch of it should be obtained and sent to *"Meccano Outfit No. 4 Contest, Meccano Limited, Binns Road, Liverpool 13."* Each illustration submitted must have the competitor's age, name and address on the back, and a list of the parts in the model must be included with the entry.

Entries will be divided into two Sections, A, for competitors in the British Isles, and B, for competitors Overseas. Closing date for Section A, 30th April; for Section B, 30th July.

The following prizes will be awarded in each Section. First, Cheque for £3/3/–; Second, Cheque for £2/2/–; Third, Cheque for £1/1/–. There will be also five prizes of 10/6 and five of 5/–.

Unsuccessful entries will be returned to senders if a suitably stamped and addressed envelope is enclosed with the entry.

Prizewinning entries become the property of Meccano Ltd., and are not returnable.

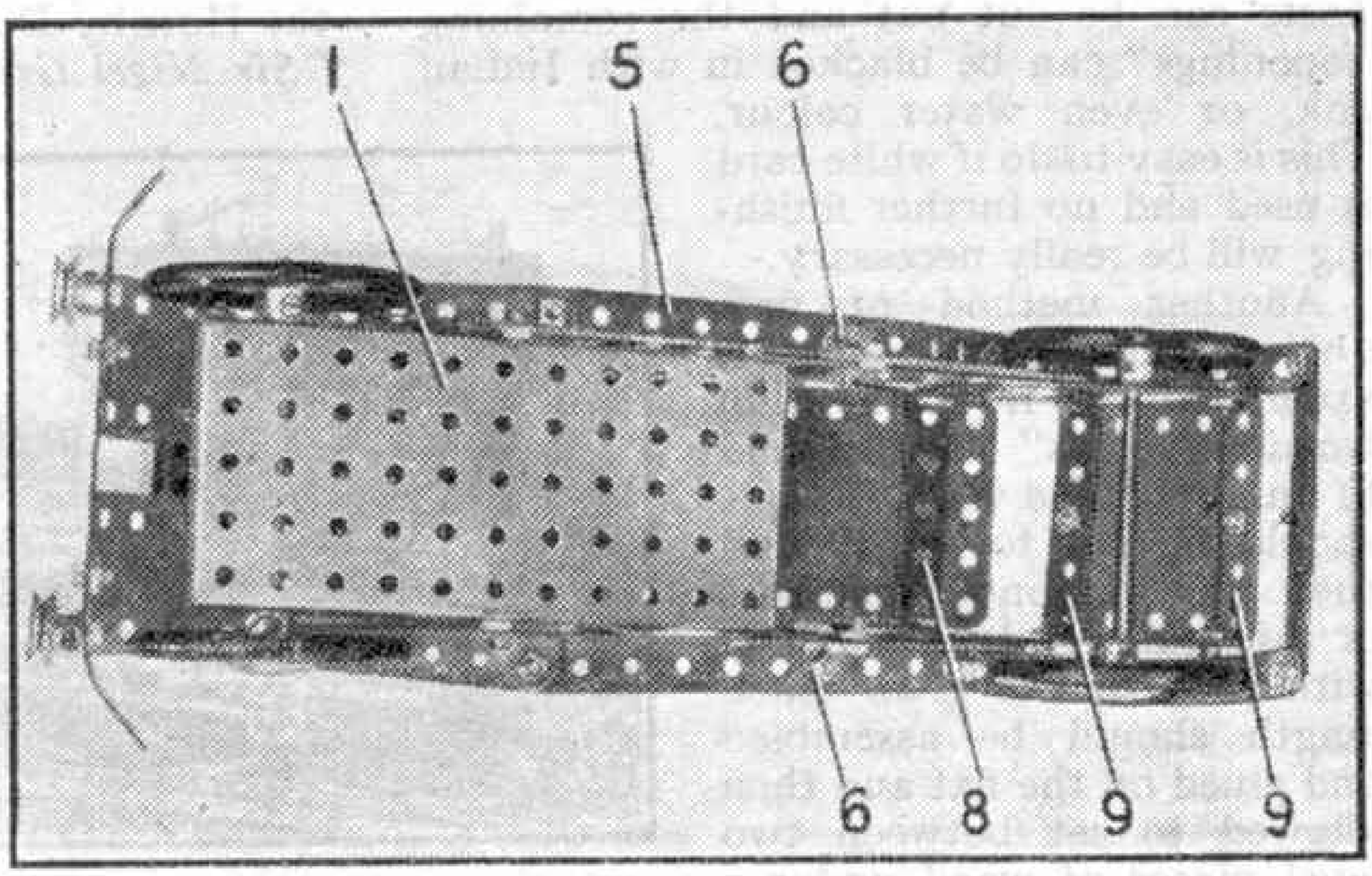
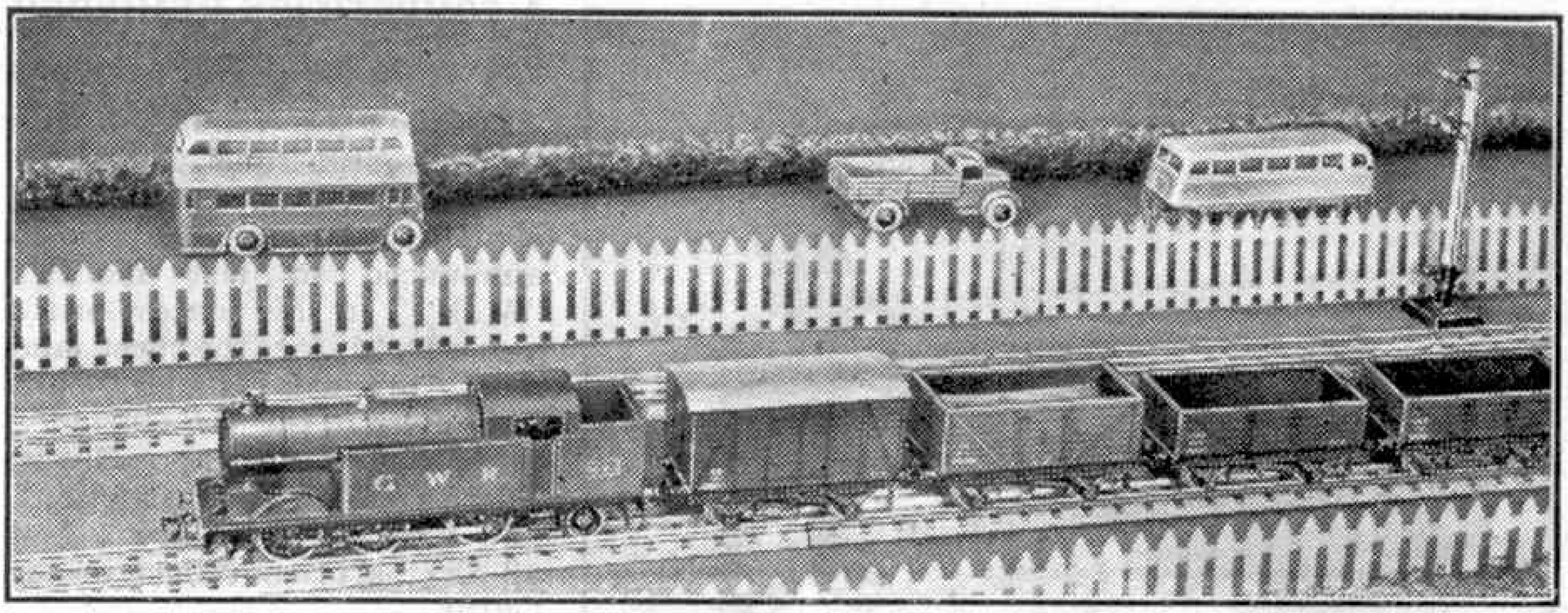


Fig. 3. An underneath view of the chassis of the car seen in Fig. 1.



A Hornby-Dublo railway with effective lineside arrangements. Good use is made of Dinky Toys on the "road."

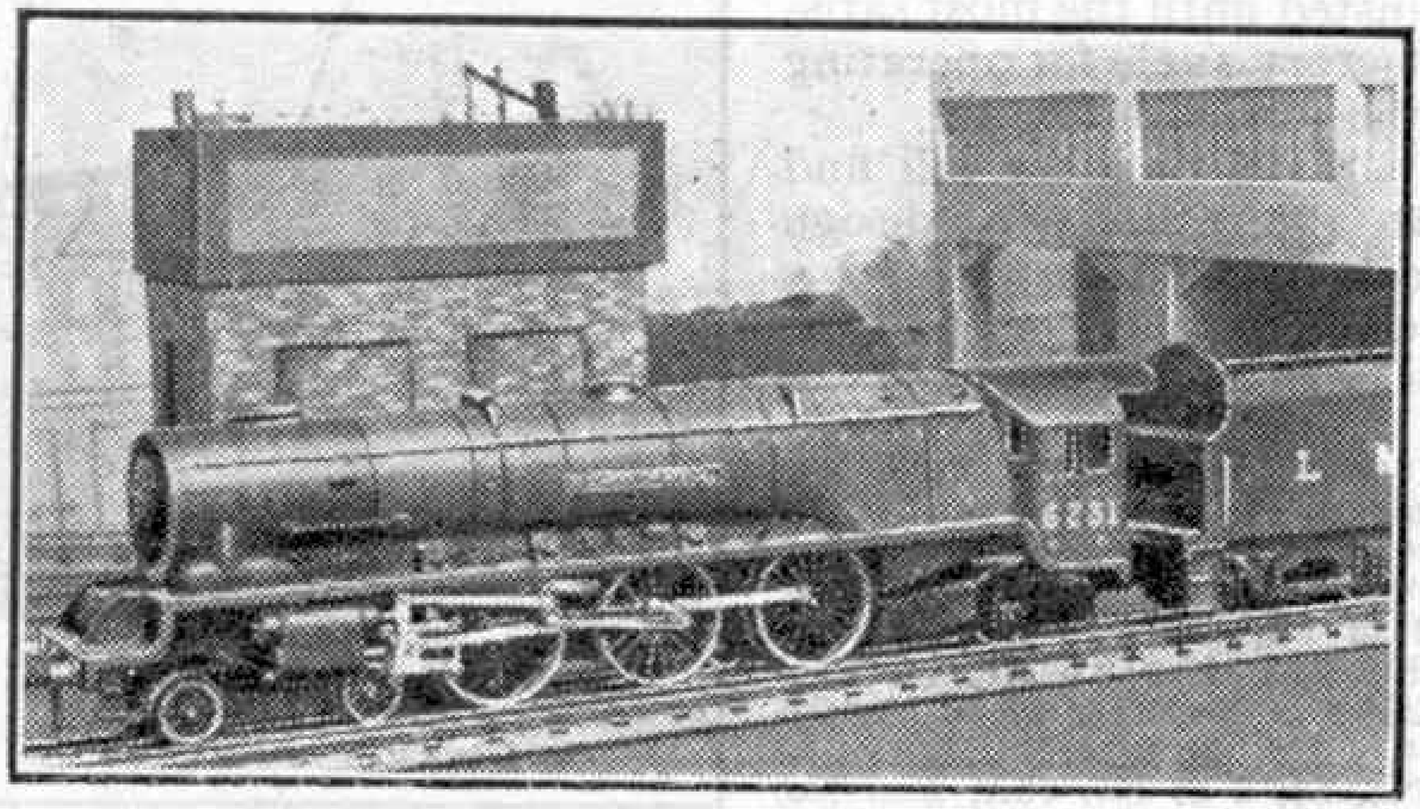
Round the Hornby-Dublo Track

THE illustrations on this page both show improvements made to Hornby-Dublo layouts by some attention to the lineside. Even a few simple additions can help toward turning a plain track into a miniature railway. One or two lineside buildings, a wall or length of fencing, and a few Dinky Toys working in conjunction with the trains are all items that can be used for this purpose with both portable or permanent railways.

Fencing of the kind shown in the upper illustration is not at all difficult to make. It can be drawn out on card in complete lengths and the spaces between the vertical posts can be cut out with a sharp penknife guided by a metal ruler. Alternatively, just the pointed tops of the posts can be cut out and the remaining "openings" can be blacked in with Indian Ink, or even water colour. This is easy to do if white card is used and no further finishing will be really necessary.

Another method of producing fencing is to build it up in lengths from the thin wooden "spills" usually sold in bundles. The vertical posts should be cut to length and then the horizontal members or rails can be stuck to them with Seccotine or glue. Each length should be assembled and glued on the flat and then allowed to set between two level pieces of wood under a weight. Otherwise this prefabricated fencing is sometimes liable to "curl" or to become distorted. A narrow wood base should be provided for each length of wall or fence.

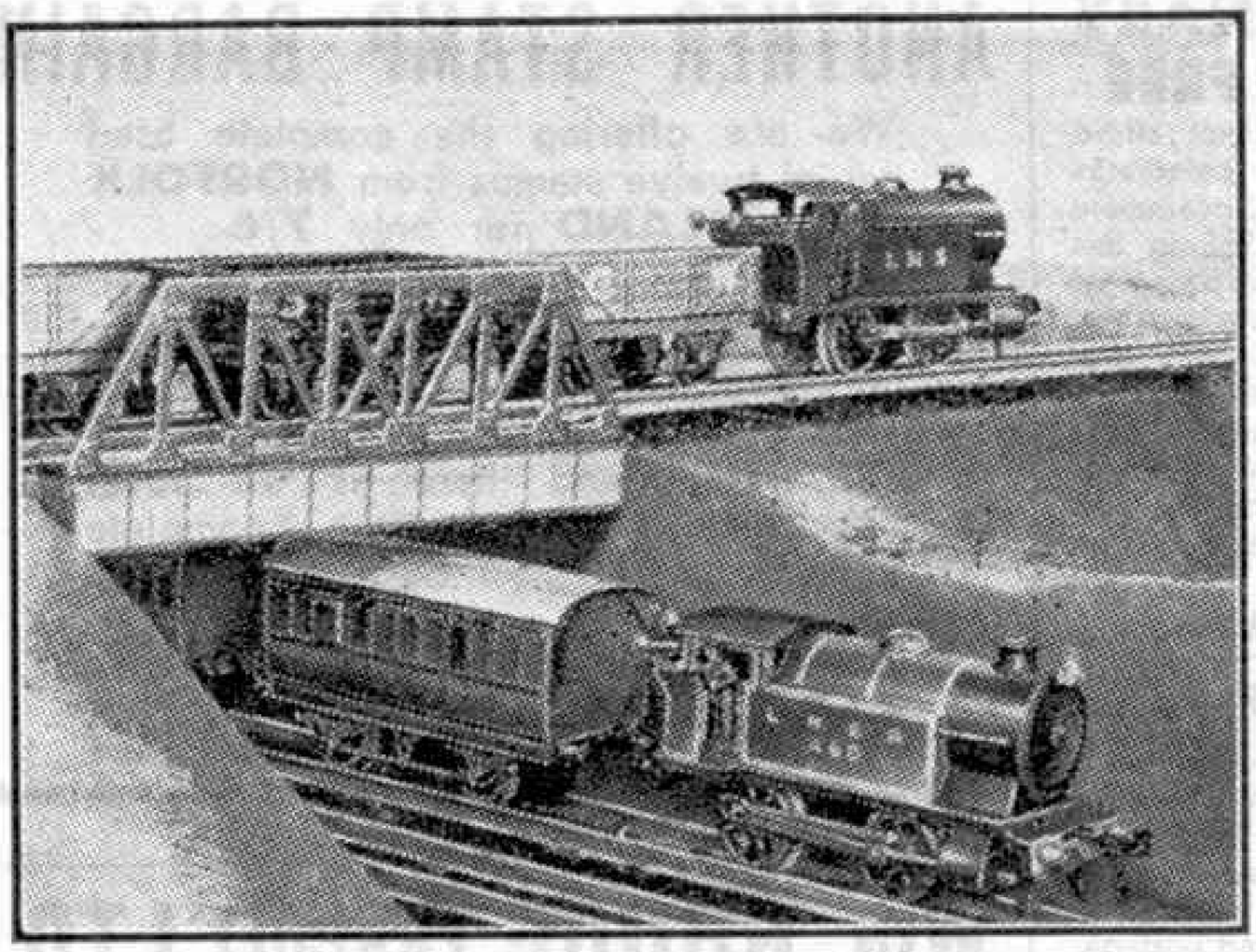
Walls, and structures like the water tank shown in the lower illustration, can be marked out, assembled and painted complete if the builder is able to carry out the finishing touches successfully. Alternatively, brickwork or other construction can be represented by means of the printed sheets that can be obtained for this kind of work at many toy or hobby shops. The water tank and engine shed shown here are the work of *"M.M."* reader W. A. Gittoes. Together they form part of an attractive locomotive depot, well fitted to accommodate such distinguished engines as the Hornby-Dublo *"Duchess of Atholl"* and *"Sir Nigel Gresley."*



"Duchess of Atholl" in a realistic setting on the layout of W. A. Gittoes, Basingstoke.

Running Hornby Clockwork Trains

TO run any trains successfully a good track is essential. This is particularly so in miniature practice, especially with clockwork engines, where the power of the mechanisms is relatively limited. Miniature railway operators, therefore, must make sure that their layouts are arranged on a good level surface and that the rails are all properly connected. Rail joints must be tight and true, and assembled either with Connecting Plates or Clips according to the type of track in use. Slack joints without Connecting Plates or Clips lead to poor running, and after some use the rails at such joints are liable to work apart and a derailment is certain to take place.

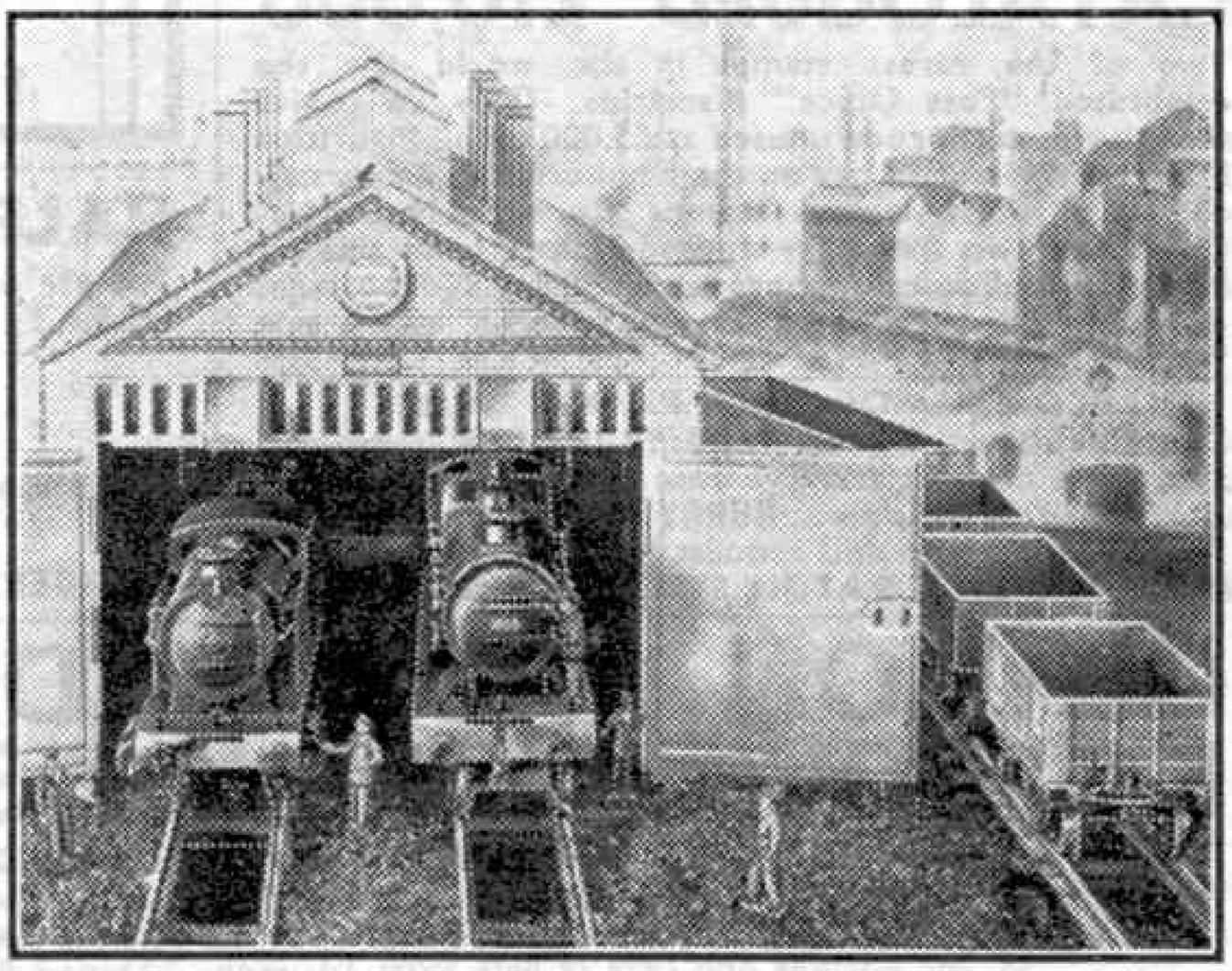


Hornby Clockwork Tank locomotives at work. These engines are suitable for a wide range of duties.

A point sometimes neglected in making additions to a Hornby Train Set is that the curves and points obtained should be of the same radius as those included in the Set. Thus, for example if the Set has 2 ft. radius curves —12 to a circle—the new material should correspond. Otherwise the layout cannot be developed properly, as curves and points of a different radius will not fit in. Many engines and vehicles intended for 2 ft. radius track will not run on rails of the smaller radius. Some of them might just get round at low speeds, but others would certainly be derailed.

Even with a perfect track it is impossible to obtain satisfactory running unless the engines and stock are in good order. Most people recognize that a clockwork engine should be lubricated; but in doing so many use the wrong kind of oil, or too much of it anyway, in spite of the instructions packed in every Train Set. A thin oil of good quality is required, such as is used for sewing machines. Axle bearings, gears and such points as the side rod pins of the engine all need a little oil, applied preferably by means of that favourite weapon the wire dipper, or even a sharpened matchstick. An ordinary oil can really delivers too much for the job.

Many Hornby Train owners who look carefully after the running of their trains are apt to be careless about putting them away after use. Particular care should be taken when putting the different items into a box or drawer to leave plenty of room for them. If this is not done, the parts, especially the rails and rolling stock, are liable to be damaged. Rails may be bent, while the wheel frames and couplings of vehicles also may suffer.



Hornby engines "at home." Regular attention at the depot ensures satisfactory and reliable working.

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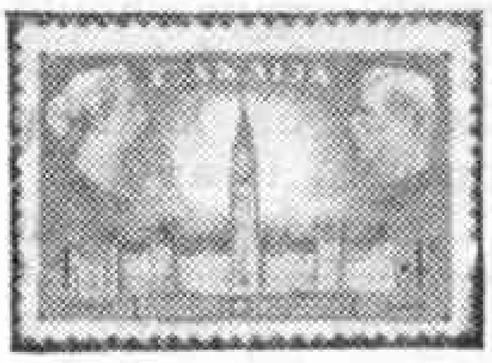

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For other Stamp Advertisements see also pages 162 and vi.

Stamp Collecting

Canadian Pioneers

By F. Riley, B.Sc.

OUR stamp tour of the Empire now brings us to Canada, the great Dominion stretching across the American continent and from the Great Lakes to the Arctic. The number of Canadian stamps is very large, and they include a good proportion of issues illustrating the life of the country and its history. When Canada is mentioned many younger boys think immediately of Niagara, and perhaps also of the Royal Canadian Mounted Police, the famous Redcoats who "always get their men." Those whose ideas of the Dominion do not yet go further than this will be specially interested in two of the stamps illustrated on this page, which show these Canadian institutions. These are the 10 c. and 20 c. values of a set issued in 1935.

When the first Canadian stamps appeared, in 1851, four of the provinces now included in the Dominion did not make use of them. Canada then was a colony, as were Nova Scotia and New Brunswick, and the two latter issued their own stamps and continued to do so until 1868, the year after the three had become united as the Dominion of Canada. Some of these early issues are very highly priced, and most of them will be beyond the pocket of the ordinary young collector, but they are none the less interesting. The first stamps of Nova Scotia and New Brunswick were diamond-shaped, a very unusual form. Those of New Brunswick included one showing an early wood burning locomotive and another showing an early steamship, but in some respects the most interesting was one showing a portrait of Charles Connell. Connell was the postmaster, who seems to have seized upon the opportunity to immortalize himself, but there was trouble about his enterprise and the stamp was withdrawn. The few copies remaining to-day are very highly priced.

British Columbia also was at first independent as far as stamp issues were concerned. Beginning in 1860, they were withdrawn in 1871, when the colony entered the Dominion of Canada. The most interesting of the stamps issued there was one with a design incorporating a capital letter V, in the two arms of which were representations of the Morse signal for this letter. Its appearance was recalled during the war, when the Victory "V" sign became familiar. In 1873 Prince Edward Island also entered the Dominion and then withdrew its own stamps, all of which had been of the portrait variety, beginning in 1861.

The Canadian stamps of 1851 were three in number. Two bore portraits of Prince Albert and Queen Victoria, but the third was really Canada's first pictorial, for its design showed the beaver, the sagacious little animal that is so characteristic of Canada's rivers and woods. Other portrait stamps followed, including two showing Jacques Cartier, the pioneer French explorer and discoverer, and then, on 1st July 1867 the Dominion of Canada was formed. The 50th anniversary of this confederation was celebrated in 1917 with a 3 c. stamp reproducing a painting, "*The Fathers of Confederation*" by Robert Harris. The subject of the painting was the Quebec conference of 1867 that finally settled details. A stamp with a similar design, together with portrait stamps of Canadian statesmen and a map stamp, appeared in a further celebration 10 years later.

In the meantime the stamp roll of the Dominion had been growing, chiefly with portrait stamps, and a striking map stamp of the world, showing British possessions in red, marked the coming of imperial penny postage in 1898. Canada's first commemorative set was issued in 1908. This celebrated the 300th anniversary of the founding of Quebec in 1608. Great names such as Champlain, Montcalm and Wolfe distinguished this issue. Samuel de Champlain penetrated further west than Montreal, discovered Lake Champlain and founded Quebec. He became Governor of Canada for the French king. Montcalm and Wolfe were the two generals who fought out the battle on the Heights of Abraham near Quebec which finally decided that Canada should be British. Wolfe was killed in the battle and Montcalm was mortally wounded. The two are shown together on one stamp, the 7 c. value. Champlain's house in Quebec appears on the 5 c. value, there is a view of the city in 1700 on the 10 c. value, and on the 15 c. stamp Champlain is seen setting out on one of his expeditions to the west.

The greatest name associated with this issue, however, is that of Jacques Cartier, the St. Malo seaman who discovered and explored the eastern coasts of Canada in 1534, and in 1536 entered the St. Lawrence and made his way to what is now Montreal. The great discoverer is seen also on a stamp of 1934 celebrating the 400th anniversary of his discovery and landing. This stamp is illustrated here.

Our remaining illustration shows a stamp issued to mark the centenary of a very interesting episode in Canadian history, the crossing of the Atlantic Ocean by the "*Royal William*" in 1833.

INDO-CHINA AIR MAIL FREE

We will send to **you, Absolutely Free,** this really magnificent unused Air Mail stamp which was issued by **INDO-CHINA** in 1933. It depicts a mail-carrying Aeroplane in flight, as illustrated. It is a super stamp wanted by every collector.

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1000	Do.	15/-	50	Do.	2/-	100	Do.	2/-
100	Br. Em.	2/-	100	Do.	5/-	200	Do.	5/-
200	Do.	5/-	200	Do.	15/-	300	Do.	15/-
300	Do.	8/6	20	Croatia	1/-	25	Gt. Brit.	1/-
500	Do.	20/-	25	Do.	1/6	40	Do.	2/-
50	Austria	1/-	50	Do.	5/-	65	Do.	5/-
100	Do.	2/-	100	Do.	10/6	100	Do.	10/-
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10 French Colonials, 10 Italian Pictorials, 5 Foreign Pictorials, Free to all applying for my cheap approvals enclosing postage. **H. Jackson, 20, Upper Branch Street, South Bank, Middlesbrough, Yorks.**

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This elusive stamp, missing from most collections. Free to all who send 2½d. stamp for postage and ask to see "WORTH-WHILE" approval sheets. No stamps sent abroad.
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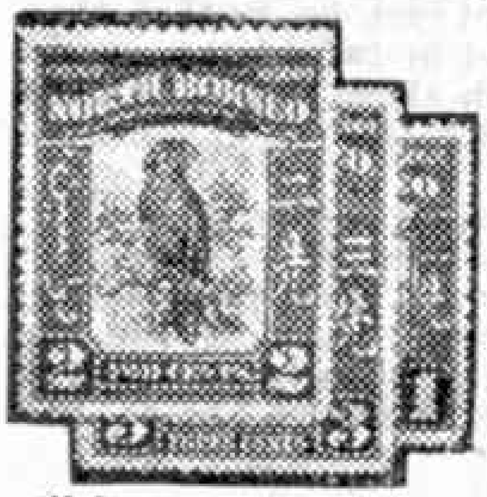

The Stamps from North Borneo, a British possession, have now been re-issued following the Japanese occupation, overprinted with the Royal Cypher as a temporary issue. A fine set of these eagerly awaited large pictorial mint stamps will be sent to you by return of post **Absolutely Free.** Send immediately 2½d. postage and request our famous approval selections. Good discount. Write to-day.
L. E. Thompson, 2, Western Gardens, London W.5

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G. P. KEEF, Willingdon, Eastbourne

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Beautifully printed complete set of 4 stamps commemorating the Nawab's Silver Jubilee. Large bi-coloured Pictorials showing "Cotton," "Wheat," the "Sahiwal-Bull," etc. The set of the year which everybody will want. Our price 5d., blocks of four 1/8, post free with our famous "½d. Upwards" Approval Selections. Our latest illustrated price list of Packets and Mixtures will be sent free on request. Write to-day to:—
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For other Stamp Advertisements see also pages 160 and xi.

Stamp Gossip

and Notes on New Issues

By F. E. Metcalfe

GOVERNMENTS are quite aware how much money is to be obtained by catering for the hobby; alas, some do a bit too much catering. At the same time it is rather stupid for collectors to talk about exploitation—we heard a terrible lot of this when the "Silver Wedding" stamps were announced—when the most any post office does is to issue stamps for collectors to buy, *if they wish*.

Some of the philatelic papers have printed the news that the proceeds of the sale of a special stamp issued in Hungary are to be used against the Greeks, and that people are being forced to buy this stamp. There isn't a word of truth in the allegation, and it is to be sincerely hoped that no post office will ever issue postage stamps which *must* be bought, for then indeed the collecting of modern stamps will cease to boom. In the meantime the average collector can hardly afford to collect the older issues, if he or she wanted to, for each new edition of the standard catalogues shows rising prices which leave old and new collectors alike aghast. Who would have thought that the cheapest "Penny Black" would be listed at £3 a copy? But there it is.

Fortunately there are plenty of cheap and beautiful modern stamps available, and the writer of these notes, who has been staying for some time in Central Europe, has been amazed to see some of the beautiful collections of stamps of Austria, Hungary, Germany, France, etc., which have cost very little to get together. Modern Austria is an old favourite, and now that there is once more a good deal of correspondence between this country and our own, used stamps are freely obtainable and at low prices too, so that those who like their collection to be made up of stamps which have done genuine postal duty can easily find plenty to collect. This of course applies to other European countries. For example, the three stamps of Austria, Hungary and France illustrated were all taken from ordinary commercial correspondence, and cost only sixpence for the lot.

Of course, our own Commonwealth issues are by far the most popular with British collectors, and rightly so; but unless one's pocket is fairly well lined, stamps from the smaller colonies take a bit of getting. Still there are the large Dominions and used stamps from these countries are cheap and attractive. But please be sure to collect only copies that have been nicely cancelled and are well centred. Don't be fobbed off with poor copies, or your collection will never be worth showing, and certainly will never be worth much if you wish to sell.

Two collectors have recently asked the same question. Is there any investment future in modern Russian stamps? And the answer is no. One of these collectors had spent a considerable sum on his collection, and when he tried to sell it in a large provincial city he was politely told to offer it to the dealer from whom he had bought the stamps. He then tried in London and got a bid which amounted to only about one-third of the sum he had spent. Well, the writer was not surprised to hear that; the average dealer is not keen on modern Russian stamps, for he knows that the Russian Government keeps stocks of all or most stamps it has issued, and can probably go on printing more *ad infinitum* if it wishes to do so. It would certainly wish to do so if prices rose! By all means collect Russian stamps if you feel like it, and if you don't mind what the selling price of those stamps is likely to be.

As predicted, the "Silver Wedding" stamps look like turning out to be a first-class investment, so complete your set as quickly as you possibly can. Now that they are out of the way, all eyes are turned on the forthcoming stamps to be issued by the colonies—or so it is said—to commemorate the 75th anniversary of the "U.P.U.," or Universal Postal Union. At the time of writing there are no official details, but most countries will issue a set, and the first country to announce what it proposes to do is Czecho-Slovakia. Apparently this country will issue a set and not a single stamp, and as a complete collection of the stamps to be issued for the event might prove valuable property, particularly used, collectors could do worse than try and get one together.

Sweden is a country that issues fairly attractive commemorative stamps from time to time. It does so in such an unobtrusive manner that little publicity comes its way, but the latest set issued in honour of the centenary of Strindberg is surely worth notice. The set comprises three values, of 20, 30 and 80 ore respectively. As usual they are most likely to be found used, and there should be plenty about, for unlike Russian commemorative stamps, Swedish stamps get distributed all over the country. Most will be imperforate on two sides. This is because stamps are mostly sold in rolls in Sweden, though stamps in booklets are perforated on all four sides. August Strindberg is Sweden's greatest, or at least best known, author. He is chiefly known abroad for his plays, but he is an international figure by any standard, and a set of these stamps will be a welcome addition to any "literature" collection.

A final word. "Silver Wedding" stamps have already been mentioned, but as the tip of the month, try to obtain any that you need for your collection as soon as you can, for they are going to be very rare indeed, at least in the high values. Of course, these stamps may be beyond the pockets of many of us, so there remain the low values. These are likely to prove anything but scarce, but still they will be worth having.

Ships' Flags, Past and Present—

(*Continued from page 132*)

indefinite time, giving ample opportunity for the man who is not an expert to read it without calling for a repeat. Flag signalling is undoubtedly going out of favour, and many seamen prefer the semaphore for short distances and a lantern using the Morse code for longer, with wireless when the ships are outside visual range. The decline in flag signalling is a matter of concern to the authorities.

Warships have long used a set of flags which includes some of those in the International Code, although with different meanings and many additional flags, so that the total was 86. Naturally the Code Book is a very closely guarded secret. In 1948 an Admiralty Committee went into the matter with the object of simplifying the code and decided that International Code flags should be used—the ships all have them on board for the purpose of communication with merchantmen or foreign warships—so that the signalmen should not have to keep so much in their memories although, it must be admitted, the naval signal rating very seldom finds any difficulty in that, and his work is the admiration of every seafarer.

The ensign hoisted half way up the staff or mast is a sign of mourning; when it is "dipped" by being lowered to the half mast position and then rehoisted it is the usual salute between ships meeting, and is acknowledged in the same way. The Navy's "church pendant" and the yachtsman's "mess flag" indicate that the tactful visitor should keep away unless his business is very urgent.

Finally there is the use of flags for decorative purposes, normally by dressing the ship over all, or "rainbow fashion" as it is sometimes called. When ships had two or three masts this could be done very effectively, but now that so many have only one the effect is rather spoiled. Code flags, both International and Navy, are used, and in the Navy there are very strict instructions as to the order in which they are to be hoisted to prevent signalmen sending humorous messages to those who are "in the know." In merchantmen or yachts there is no definite order, but square flags and pendants are hoisted alternately as far as possible. The National Ensign is hoisted at the principal masthead, but when the ship is dressed as a compliment to a foreign country its ensign is substituted.

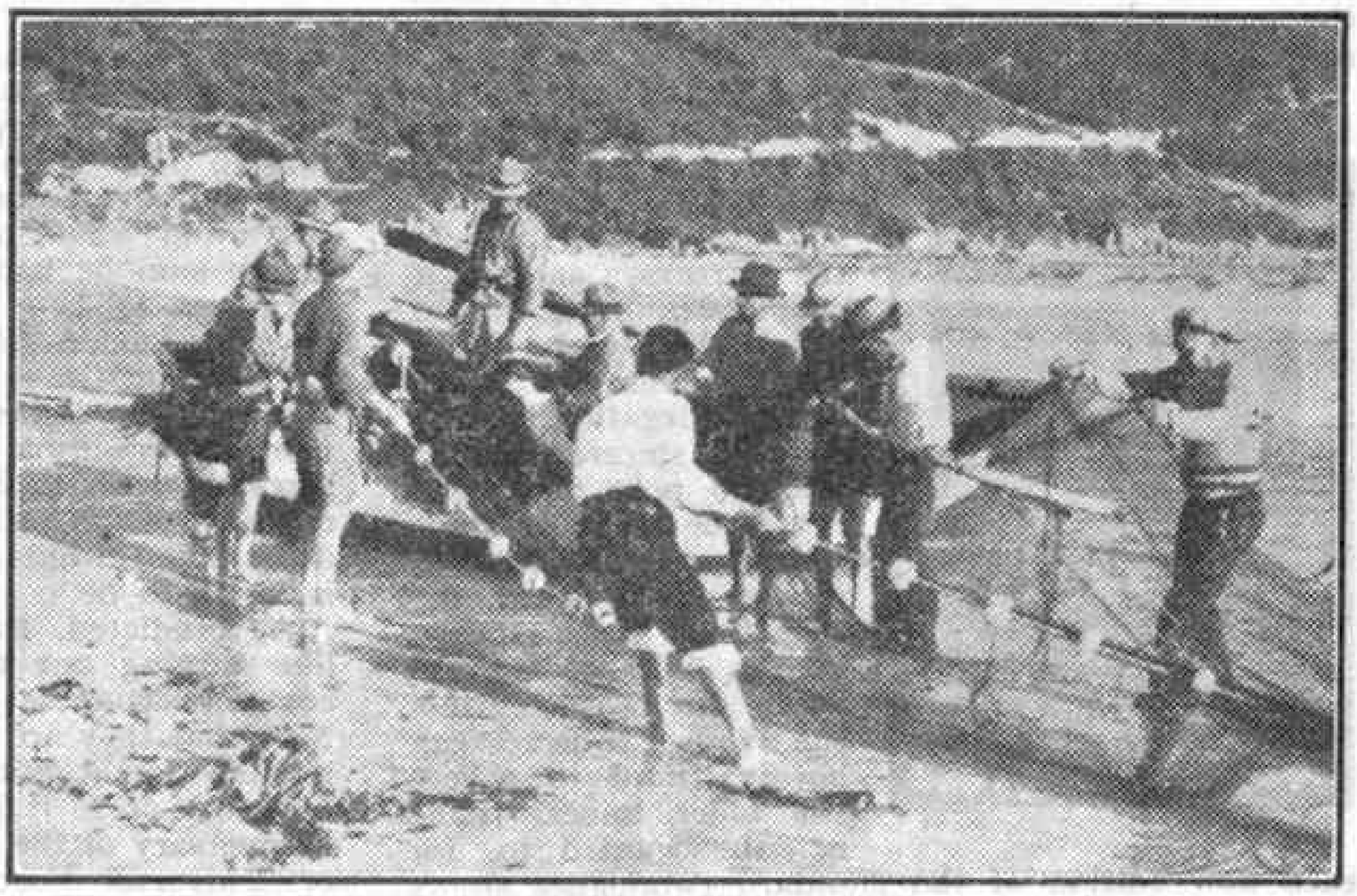
Canned Shrimp—(*Continued from page 143*)

offshore fishing. The trawl favoured is a bag-shaped net held open at the mouth by a wooden beam with shoes or runners at each end, and it is so designed that the bag is kept open by the pressure of water as it is pulled along the bottom. When the net is full it is dragged to the side of the boat and its contents transferred to the hold by dippers. This is the procedure in inshore fishing. In offshore fishing a "try net" is first put down to ascertain what shrimp are about. If conditions are favourable the large trawl net goes down. A reasonable catch in an hour and a half or two hours of trawling would be four or five barrels of shrimp. The net is hauled on board by a winch. The crew then sort the fish, using wooden rakes to prevent injury from crabs, stingarees and catfish, as well as from the spines of the shrimp themselves. The catch is then stored in the hold between layers of ice.

Some 46 per cent. of the catch is sold fresh, 25 per cent. is canned, 15 per cent. frozen, 10 per cent. dried, and 4 per cent. cooked and peeled. When shrimp is to be sold fresh the heads are removed, and the body and tail are washed and packed in ice to keep them in prime condition during the journey to market. For long distance markets the shrimp are conveyed in special motor trucks that travel day and night to reach their goal. A van has two drivers, with provision for one to sleep while the other carries on driving.

From the moment that the shrimp arrive at the factory they travel very fast and seldom stop until they are safely inside a can. A belt conveyor is lowered into the hold of the boat within reach of a man who shovels the shrimps into it and tries to keep a steady flow. The shrimp are tipped off the belt into a flume and carried in running water into a washing vat. Here they are picked up by a metal inspection belt, from which girls pick out and remove any defective shrimp. If the load looks old, or rejections number more than five per cent., the whole of it goes into meal.

If the shrimp are passed they are placed in a wire basket and rolled into the picking room, where the heads and shells are removed. The remaining meat part goes through a series of six washings and then passes along another inspection belt, before reaching the "blanching" process. This consists of pan-boiling in large wire baskets in water about three times as salty as the sea. The strictest rules of hygiene are observed throughout the various processes, so nobody need be nervous of having a shrimp "out of a can."



Coloured fishermen at Hout Bay Cape, South Africa, hauling in their nets after a successful catch. This interesting photograph by J. H. Credie, of Kempton Park, Transvaal, South Africa, was awarded a prize in an "M.M." Photographic Competition.

COMPETITION RESULTS

HOME

DECEMBER 1948 ADVERTISEMENT CONTEST

1st Prize: G. L. Groom, Pinner. 2nd Prize: Miss E. Yail, London N.W.11. 3rd Prize: K. E. Mathews, Orpington.

DECEMBER 1948 QUIZ CONTEST

1st Prize: R. Smith, Ilford. 2nd Prize: M. J. Wootton, Newthorpe. 3rd Prize: I. S. Wick, Enfield.

OVERSEAS

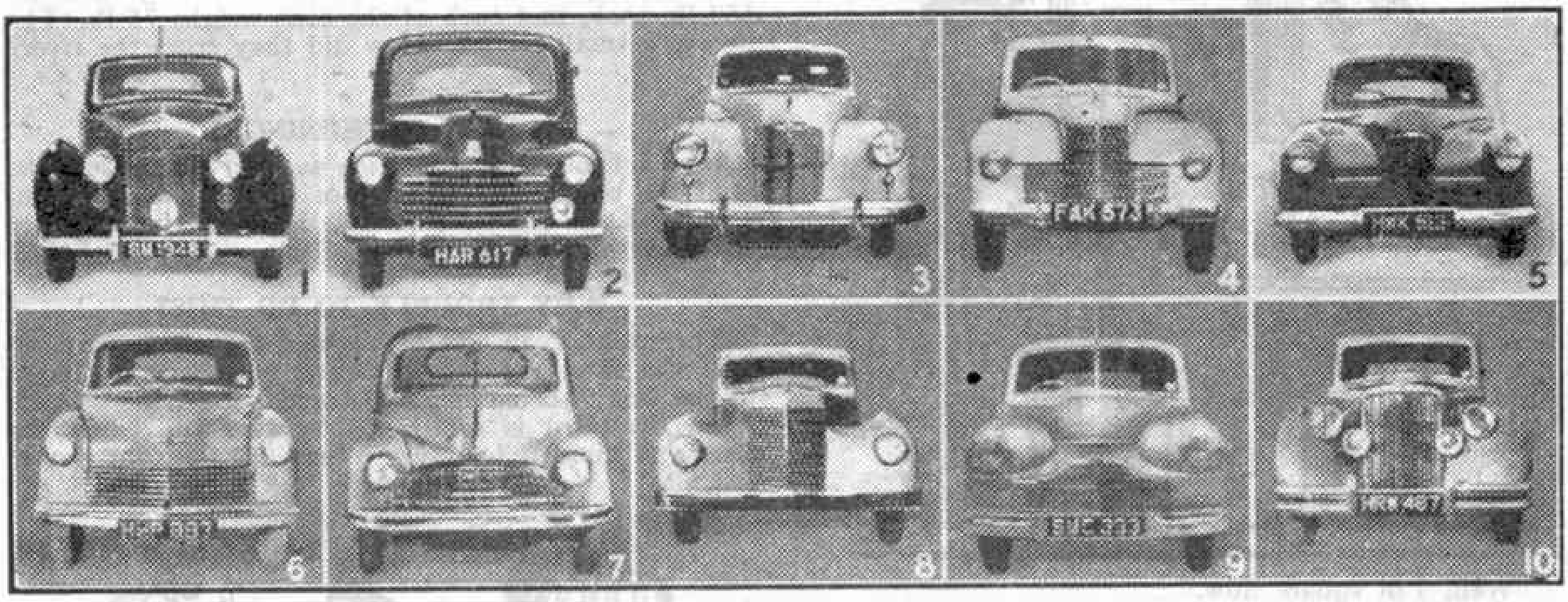
JULY 1948 FIGURE DRAWING CONTEST

1st Prize: S. Wylynks, Winnipeg, Canada. 2nd Prize: H. Rawlings, Otorohanga, N.Z. 3rd Prize: G. Grainger, Bromley, E.2, N.Z.

Competitions! Open To All Readers

Prize-winning entries in "M.M." competitions become the property of Meccano Ltd. Unsuccessful entries in photographhic, drawing and similar contests will be returned if suitable stamped addressed envelopes or wrappers are enclosed with them.

Do You Recognize These Car Faces?



Motoring enthusiasts have learned to recognize the designs of radiator grilles, the lines of wings, and the positions of lamps, bumpers and other details that give each car its own individual "face," and they can tell at a glance what is the make of practically any car they meet. In fact, to the average boy the car is something alive and personal, and not merely a piece of mechanism. Interest in car faces is perhaps greater than ever just now, when new shapes are making themselves evident. While some makes keep more or less closely to the classical lines of the past, others have become modern, with heavier grilles set low down, alligator bonnets and wide wings merging into the general lines of the body. A competition based on car faces therefore is timely, and here it is.

In the illustration on this page we show the fronts of 10 modern British cars, which we ask readers to recognize. The 10 pictures are numbered, and in their entries readers must state with each number the name of the car that it represents. Sufficient must be given to identify the model completely. For instance, it would not be enough merely to give such a name as "Morris" or "Austin," as there is more than one design in production with each of the two firms concerned, and indeed with others represented in our contest.

Prizes of 21/–, 15/– and 10/6 will be awarded to the competitors who send in the best entries in order of merit, and in the event of a tie the judges will take into account the neatness and novelty of the entry. There will be a section for overseas readers, in which prizes of the same value will be awarded. Consolation prizes will be given to other deserving efforts in both sections.

Entries must be addressed "*Car Faces Contest, Meccano Magazine, Binns Road, Liverpool 13.*" Closing dates: Home, 31st May; Overseas, 31st August.

An Aircraft Drawing Contest

This month we invite readers to take part in the last of the present season's drawing contests. Competitions of this kind are always very popular, and we are sure that readers will thoroughly enjoy another opportunity of showing what they can do in this respect.

What am I to draw? That is the question that readers will already have asked. The answer is an aircraft of some kind. Practically every reader of the "*M.M.*" will have some aircraft in which he is specially interested, and that is what he is asked to show in his entry. It may be an air liner or a military machine, a famous aircraft of the past or a modern one, a fast one or a slow one, in fact any machine that can rise into the air and move there will serve as the subject. The helicopter of course is not excluded, and in view of the rising interest in this type of machine, no doubt a large number of entries will give it due prominence. Drawings of gliders also will be accepted, and if any reader is specially attracted by dirigible balloons he can send in a drawing of one of these.

Machines may be shown either on the ground or in flight. Colour may be used if desired, but the prizes will be awarded on skill in drawing.

The contest is divided into two sections, for Home and Overseas readers respectively, and in each prizes to the value of 21/–, 15/– and 10/6 will be awarded for the best drawings. Entries must be addressed: "*Aircraft Drawing Contest, Meccano Magazine, Binns Road, Liverpool 13.*" The closing dates are: Home Section, 31st May; Overseas Section, 31st August.

April Photographic Contest

In the fourth competition of our 1949 series we invite readers to submit photographs dealing with a special subject. This is SPRING, and any photograph that suggests the coming of this season will be eligible.

The only conditions in this contest are 1, that the photograph must have been taken by the competitor, and 2, that on the back of the print must be stated exactly what the photograph represents. A fancy title may be added if desired.

The competition will be in two sections, A for readers aged 16 and over, and B for those under 16. Each competitor must state in which section his photograph is entered. There will be separate sections for overseas readers, and in each section prizes of 21/–, 15/– and 10/6 will be awarded.

Entries should be addressed "*April Photographic Contest, Meccano Magazine, Binns Road, Liverpool 13.*" Closing dates: Home Section, 30th April; Overseas Section, 30th July

Fireside Fun

"My head's burning, doctor. Have I got brain fever?"
"Well, not exactly. Just fever."

• • • •

"Well, I'm square now."
"Yes, sir, and I hope you'll be round again soon."

• • • •

"One tree that would remain after a forest was burned out is the ash."
"That's nothing. I know one that would still be there after the seas had stormed over it."
"What tree is that?"
"The beech."

• • • •

"Yes, I'm well off now, but once I was glad to be down and out."
"When was that?"
"After an aeroplane trip in a fog."

• • • •

"If you're hungry, just cut up that wood and I'll give you a meal."
"I'm only hungry, mum, not desperate."

• • • •

"Jones doesn't want you to say anything about his black eye."
"Wants to keep it dark, I suppose."

• • • •

"Good, but where is its tail?"
"It's still in the ink pot, miss!"

BRAIN TEASERS

A FISHY PROBLEM

The tail of a fish weighs 2 lb. Its head weighs as much as the tail and half the body, and the body is as heavy as the head and tail together. What does the fish weigh?

• • • •

FORWARD AND BACKWARD

A man and his wife, two sons and a dog have to cross a stream in a boat that can carry a load of 150 lb. only. The man and his wife weigh exactly 150 lb. each, and each of the sons weighs 75 lb. The dog is a small terrier. How did they cross the river?
S.W.C.

• • • •

EASY RECKONING

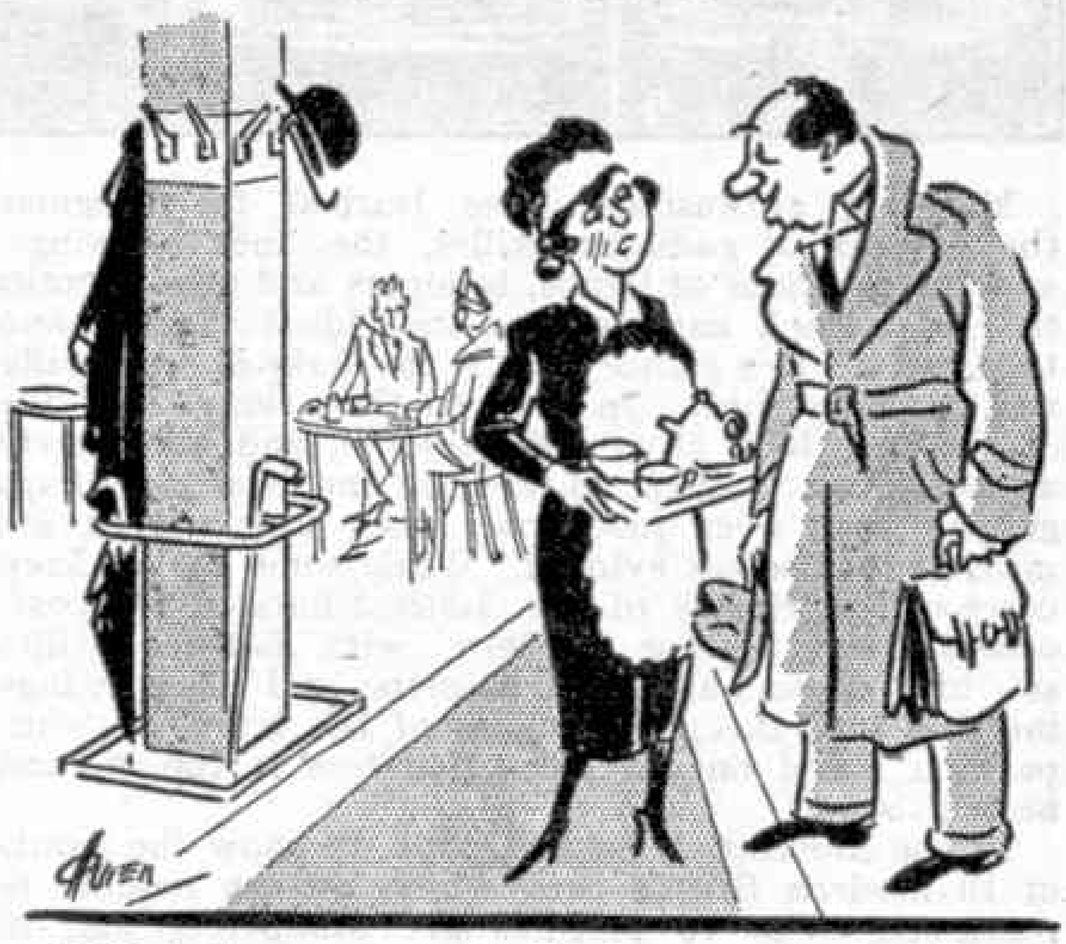
In a school there are twice as many boys as girls. Half the boys and a quarter of the girls learn Latin, and the Latin classes total 65. How many pupils are there in the school?
B.I.N.

• • • •

WHY TROUBLE TO DO THIS?

The number 39 can be divided into four parts so that the same result is obtained when two is added to the first, when two is subtracted from the second, when the third is multiplied by two and when the fourth is divided by four. What are the four parts?

• • • •



"Did I leave an umbrella here, yesterday?"
What kind, Sir?"
"Oh any kind; I'm not fussy."

• • • •

SOLUTIONS TO LAST MONTH'S PUZZLES

The three words indicated in our first puzzle last month were CON, CANOE and MACE. Placed in their proper positions the letters in these make up the word MECCANO.

The new pens made by the farmer in our second puzzle were triangular in shape, each side being made of one hurdle. Twelve hurdles were used in making up six pens in the form of a regular hexagon and with the remaining two hurdles another pen was added on one of the sides of the hexagon.

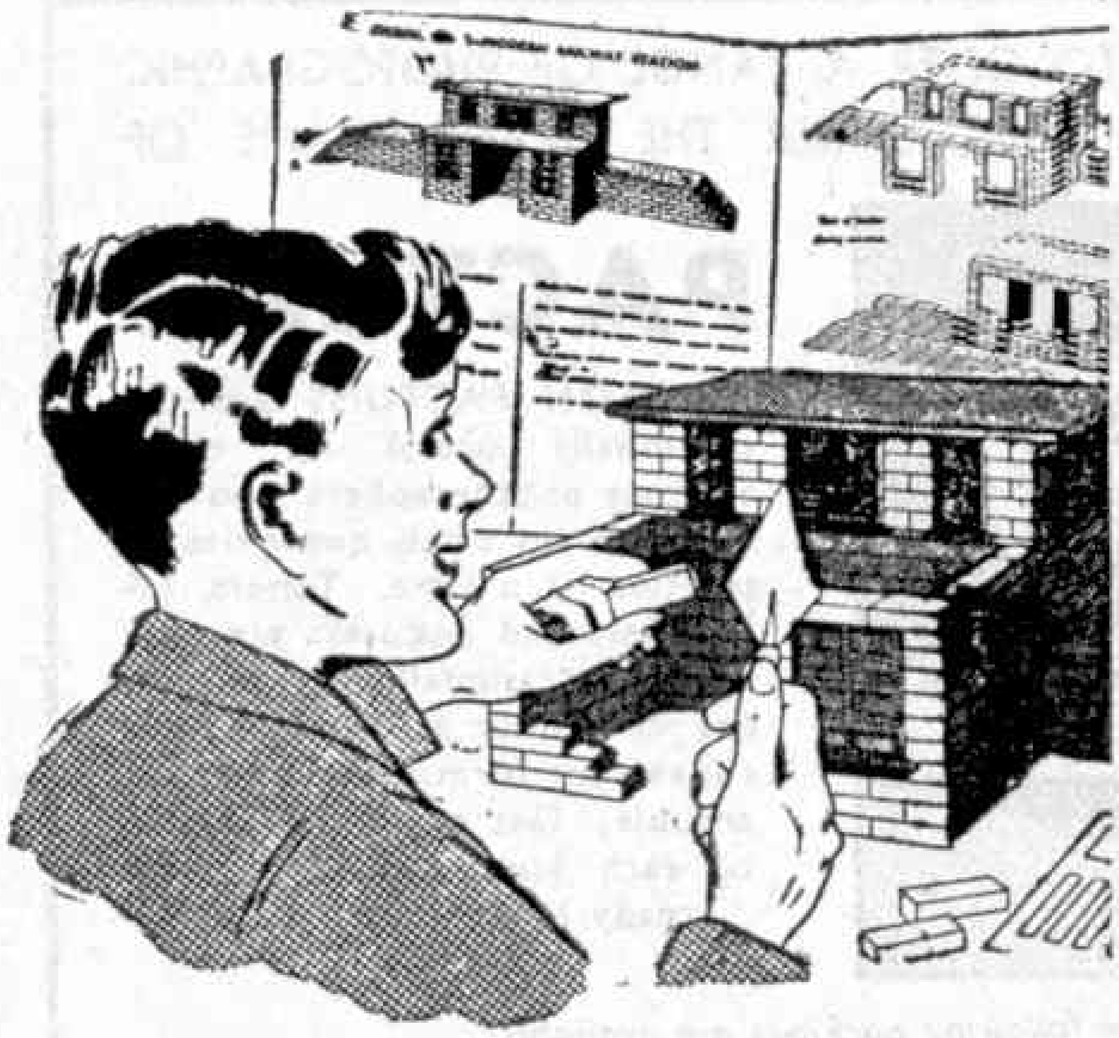
A drulitch is only 25 rambics, while a couple of gloofs is 40 rambics and therefore are to be preferred. That of course is easy to work out. Gloofs to quertons is more complicated. One gloof is clearly four-fifths of a drulitch, which is 144 quertons, so that the exchange for a gloof is 115 1/5th quertons. It is easier to stick to pounds, shillings and pence!

By inserting 12 E's in the line of letters of our fourth puzzle we get THE ELEPHANT EMERGED FROM THE EVERGREEN FOREST.

• • • •

THIS MONTH'S HOWLER

A sentry is a man who has lived a hundred years.



JOHN IS BUILDING HIS MODEL VILLAGE WHY NOT YOU?

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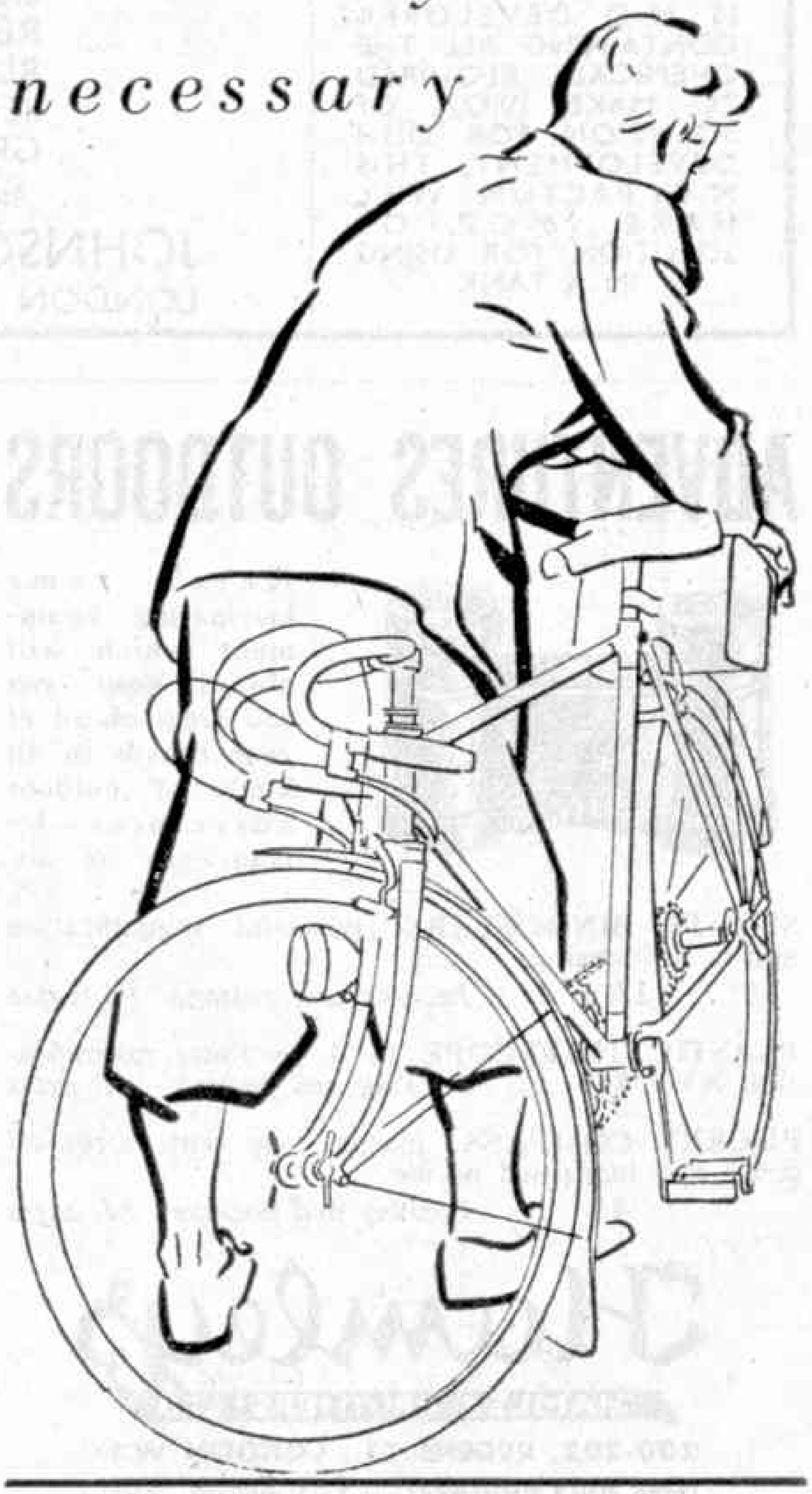

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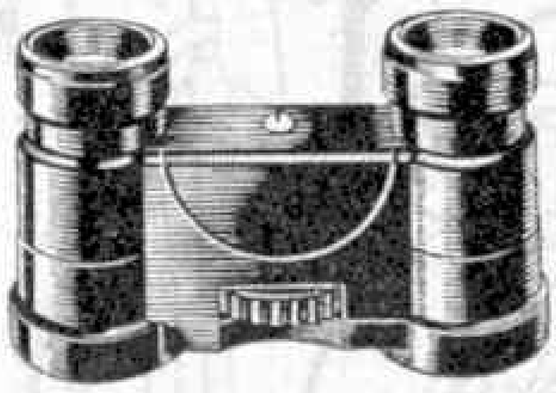

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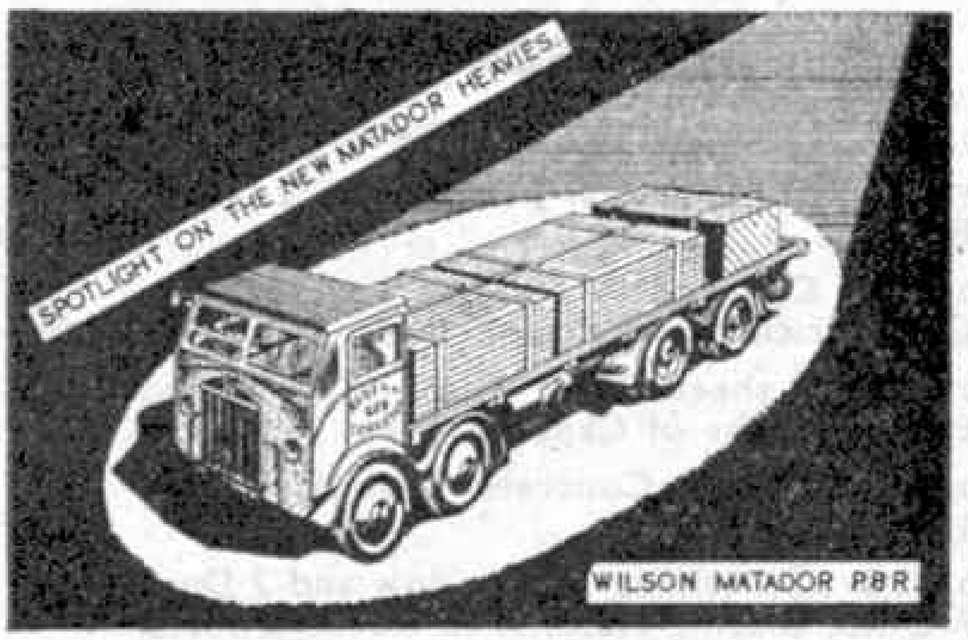

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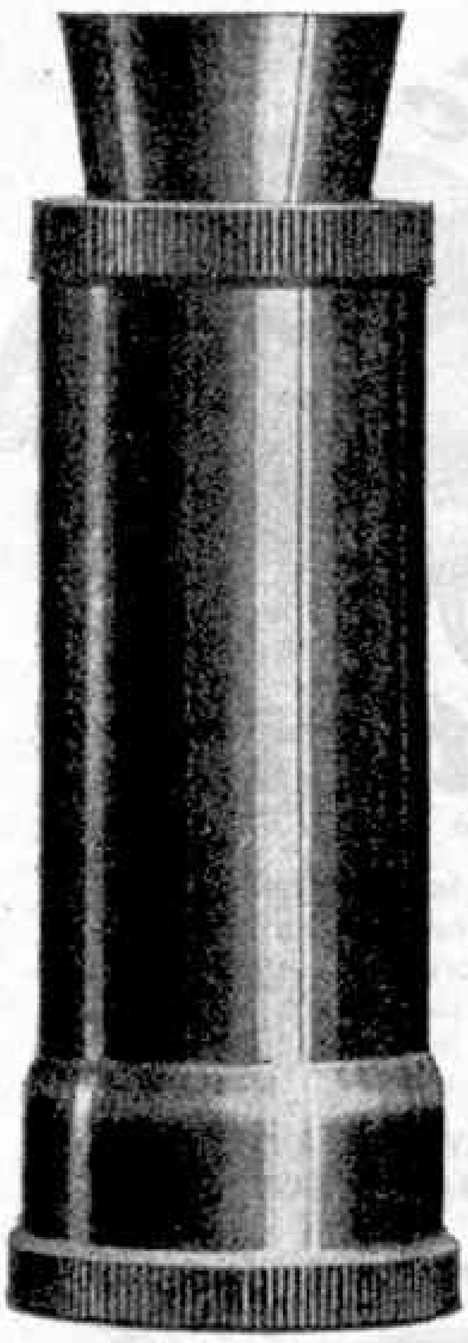

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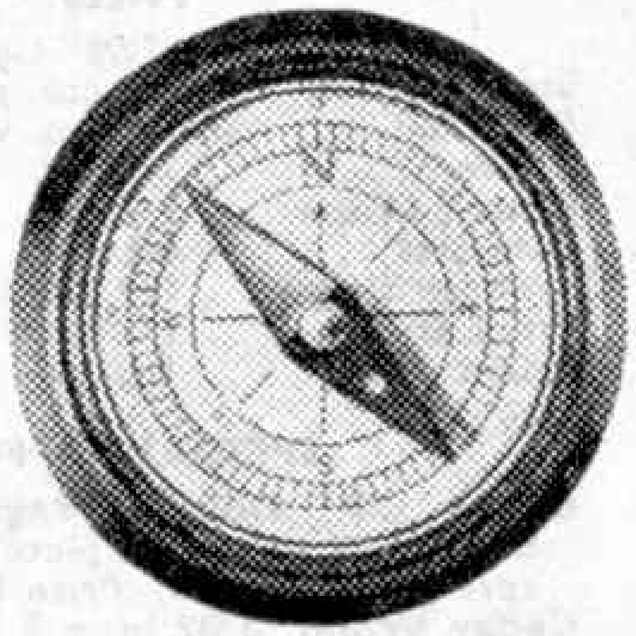

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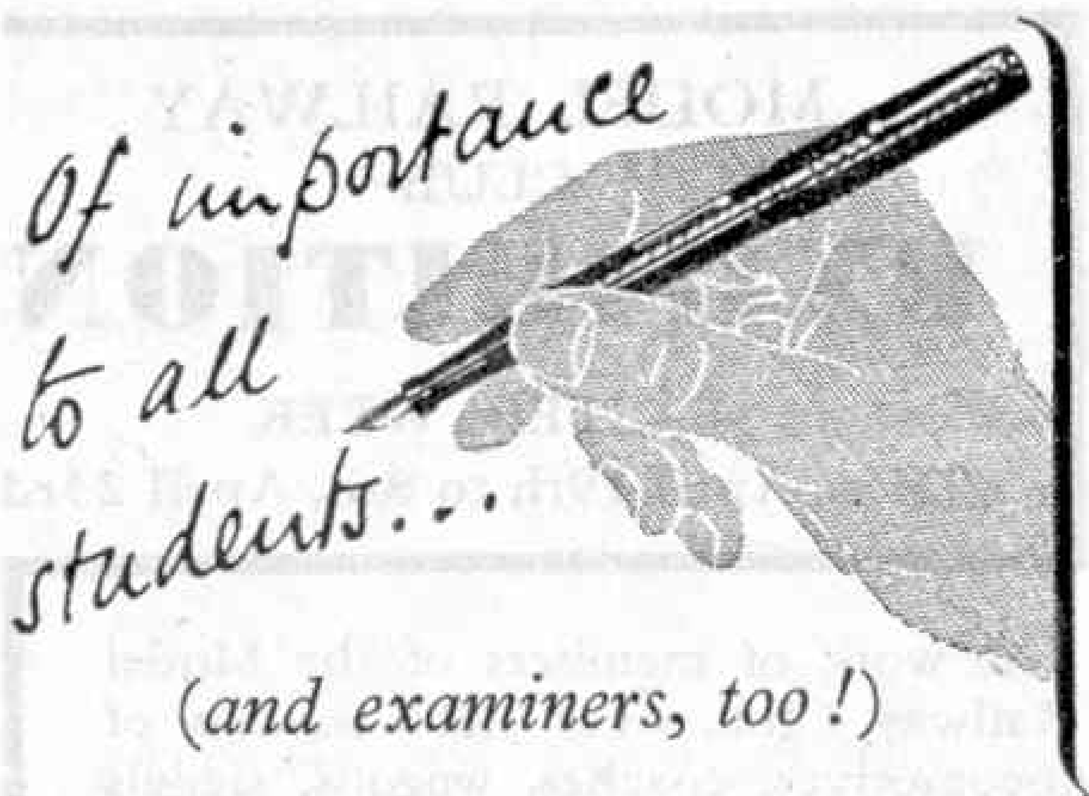

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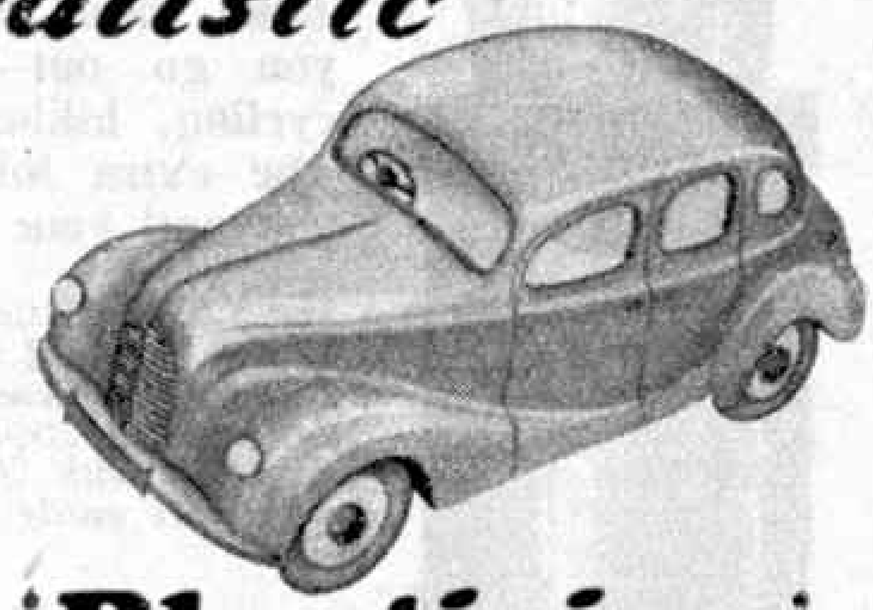

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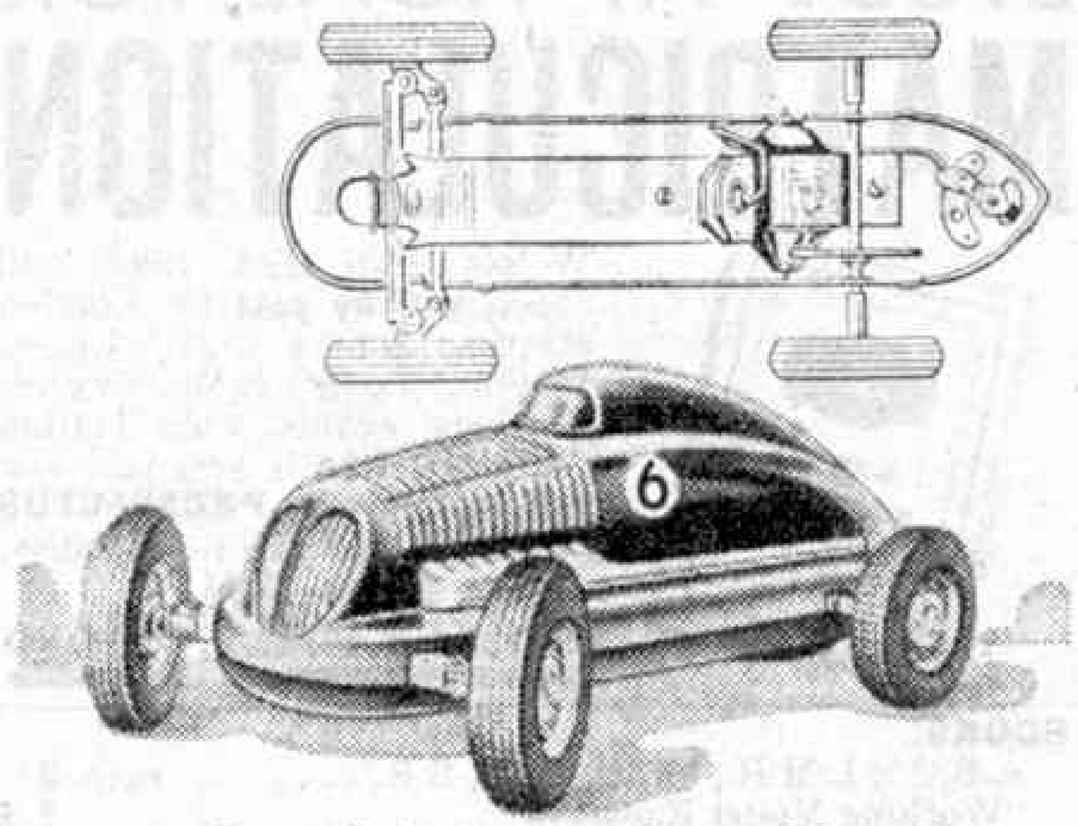

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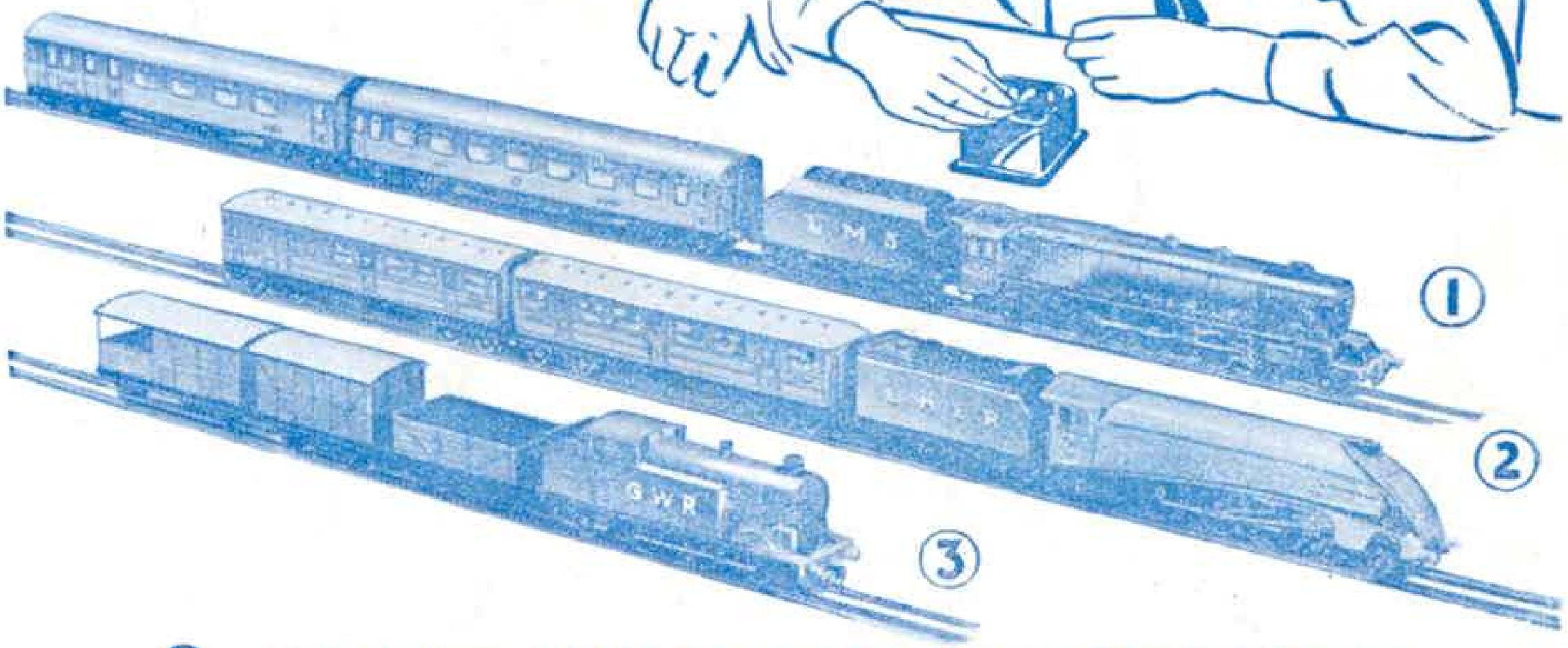

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